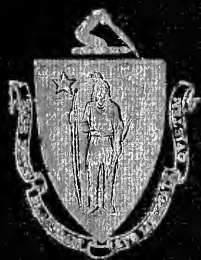


* UMASS/AMHERST *



312066 0285 3205 3

ANNUAL REPORT
COMMISSION ON WATERWAYS AND
PUBLIC LANDS
1918



MASS.
DOCS.
COLL.

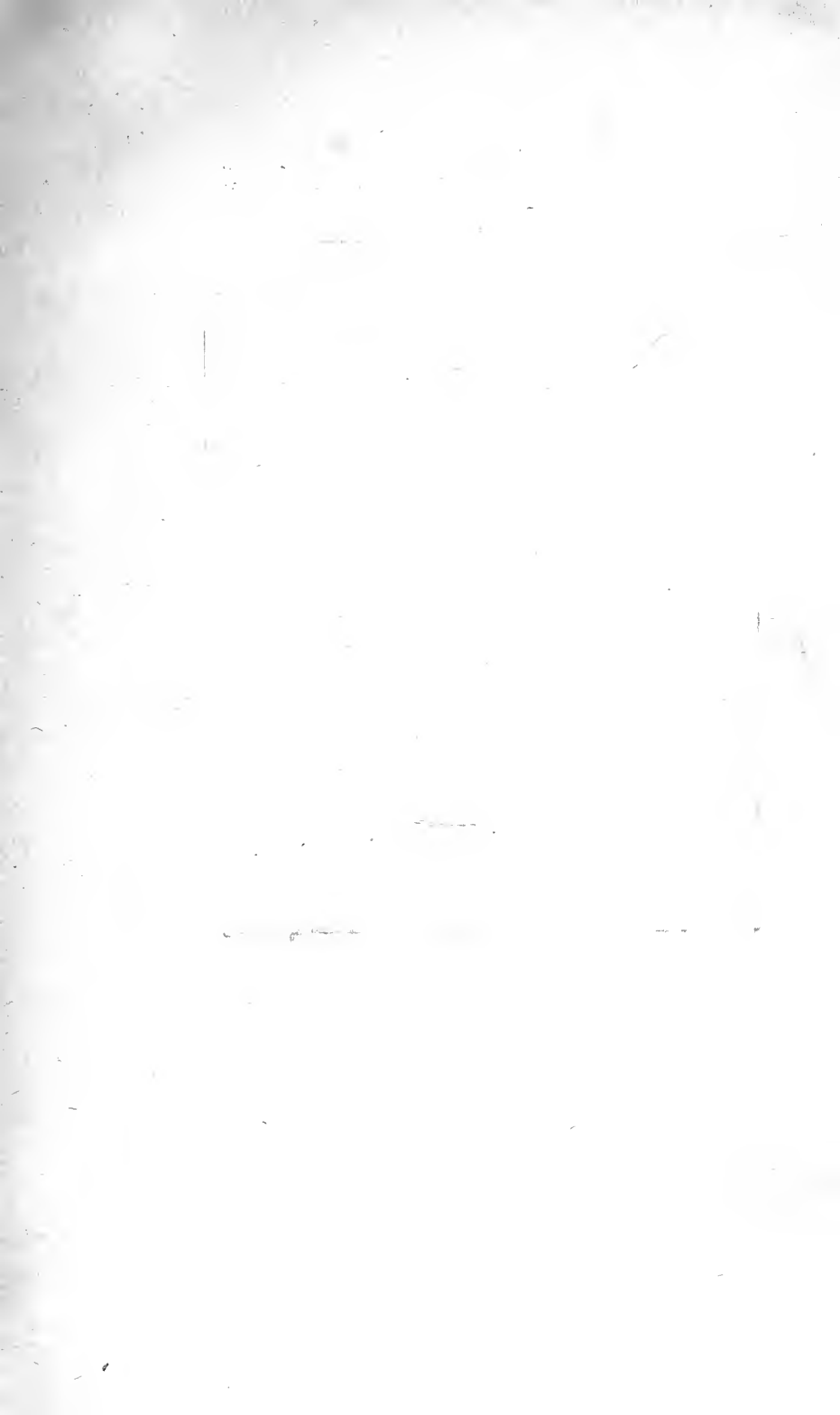


Forbes Library

Northampton, Mass.

Gift of
Secretary of the Common-
wealth

Boston, Mass.



Digitized by the Internet Archive
in 2010 with funding from
Boston Library Consortium Member Libraries

THIRD ANNUAL REPORT

OF THE

COMMISSION ON WATERWAYS AND
PUBLIC LANDS

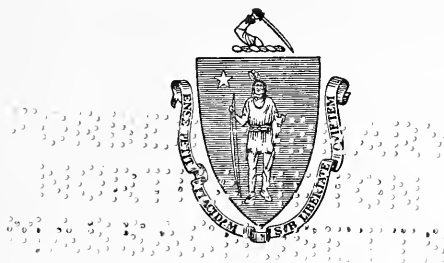
FOR THE YEAR 1918

JOHN N. COLE, *Chairman*

JESSE B. BAXTER

WILLIAM S. McNARY

Commissioners



BOSTON

WRIGHT & POTTER PRINTING CO., STATE PRINTERS

32 DERNE STREET

1919

PUBLICATION OF THIS DOCUMENT
APPROVED BY THE
SUPERVISOR OF ADMINISTRATION.

THE
FEDERAL BUREAU OF INVESTIGATION
OF THE
DEPARTMENT OF JUSTICE
HAS
RECEIVED
THIS DOCUMENT
FROM
THE
OFFICE OF THE
DIRECTOR
OF THE
FEDERAL BUREAU OF INVESTIGATION
OF THE
DEPARTMENT OF JUSTICE
ON
MAY 10 1961

The Commonwealth of Massachusetts.

REPORT.

To the Honorable the Senate and House of Representatives of the Commonwealth of Massachusetts.

The Commission on Waterways and Public Lands respectfully submits the annual report covering its activities for the year ending Nov. 30, 1918. The personnel of the Commission has remained unchanged: John N. Cole, chairman, Jesse B. Baxter and William S. McNary, Mr. Baxter having been reappointed in June, 1918, for a term of three years from the expiration of his original appointment.

The activities of the Commission during the past year in connection with general projects of improved waterways throughout the Commonwealth have necessarily been somewhat restricted on account of the pressing demands associated with war needs. Many important projects in various stages of progress, approved by the Commission, will secure early consideration and attention as soon as it is possible to again take up the normal waterway development in the Commonwealth.

RECOMMENDATIONS.

The Commission makes the following recommendations for legislative action.

FURTHER IMPROVEMENT AND DEVELOPMENT OF THE PORT OF BOSTON.

1. Developments during 1918 have abundantly demonstrated the wisdom of pursuing a farseeing policy in connection with the improvement of the Boston water front. The Commission believes it is desirable to continue in this work, and submits

MAY 28 1923 G

recommendations for further improvement and development covering the following particular projects: to continue dredging and filling at East Boston and South Boston; further extension of Commonwealth Pier No. 1 at East Boston; connecting the Commonwealth's land and water front in East Boston by railroad and highway with existing railroad and street connections; extension of bulkhead in East Boston so that further filling may be made use of; and construction of wharf; providing an amount of money sufficient to maintain Commonwealth Pier No. 1 which will be ready for use in January, 1919. For this entire work an appropriation of \$1,607,000 is requested.

2. The Commission repeats its recommendation of a year ago that legislation be passed providing for the acquisition by purchase or otherwise of the location, tracks and trackage rights and privileges of the Union Freight Railroad Company in Boston.

3. Under agreement with the Federal government, in connection with its purchase of the land on which the new army base has been constructed in South Boston, the State is required to build and pave Dry Dock Avenue, and legislation is requested to provide for this work.

4. To complete the payments necessary in connection with the taking of land at Hayward's Creek, and for development and improvement of the property, special legislation is recommended.

IMPROVEMENT OF THE MINOR CHANNELS IN BOSTON HARBOR.

As an emergency measure that would provide the necessary legislation and funds to make available money now held in the Harbor Compensation Fund for the improvement of minor channels, the Commission recommends further legislation.

DIRECT CONNECTION BETWEEN EAST BOSTON AND SOUTH BOSTON.

Various studies have been made from time to time to determine the best method of connecting East Boston and South Boston for the commercial and business advantage of the city of Boston. The Commission believes that the time has come

for early action that shall provide adequate facilities for railroad and teaming connections between these important sections of the city. The development of the land now owned by the Commonwealth in East Boston offers an opportunity for an East Boston outlet that should be carefully considered before full development of that property is realized. To provide for a study of this situation, with special reference to the construction of a tunnel between the two points mentioned, the Commission recommends legislation and an adequate appropriation to carry out a preliminary survey and prepare the necessary plans and estimates.

IMPROVEMENT OF RIVERS, HARBORS, TIDEWATERS AND FORESHORES.

A policy was established in 1909 which provided for legislation to cover the allotment of various sums that might be needed in different sections of the Commonwealth for river and harbor development. In accordance with this policy an appropriation of \$250,000 has been made available each year for the last three years for carrying on improvement and development of water front projects, and river and harbor improvement, in sections of the Commonwealth other than metropolitan Boston. The Commission recommends that this procedure be continued.

MERRIMACK RIVER.

The project of developing interior waterways in Massachusetts merits careful consideration at this time. In the belief that the development of the Merrimack River as a waterway demands further consideration before appropriations for actual improvements should be made, the Commission recommends legislation to provide not only for a definite plan and estimate for dredging, but for a study of proper piers and terminals in the vicinity of the city of Haverhill.

BOSTON HARBOR.

THE COMMONWEALTH FLATS AT SOUTH BOSTON.

Commonwealth Pier No. 5.

By agreement dated Jan. 18, 1918, a portion of Commonwealth Pier No. 5 was leased to the Navy Department of the United States for the duration of the war and for ninety days thereafter. On March 27, 1918, another part of the pier was leased to the Quartermaster's Department of the United States Army. Subsequently both of these agreements were canceled by a lease, as of May 17, 1918, to the United States Navy for the use of the whole of this pier for the duration of the war and six months thereafter. This lease is now in force.

On March 27, 1918, the Frank E. Ross Company of Boston was employed to repair the setting of the boilers in the heating plant. It was thought that only a portion of the brick work needed to be rebuilt, but later it was found necessary to take down practically the whole of this brick above the floor, to relay it and to insert additional tie rods. This work was completed July 12, 1918, at a cost of \$6,987.71.

Dry Dock.

On Dec. 5, 1917, an agreement was made with the Secretary of the Navy for the use by the United States of the dry dock at South Boston after its completion, on terms and conditions stated in the document. By chapter 270 of the General Acts of 1918 the Commission was later authorized to sell or lease this dry dock to the United States. Congress authorized the Secretary of the Navy to purchase the dry dock, and made an appropriation for this purpose. The details of the sale have been discussed and practically agreed upon between this Commission and the Secretary of the Navy.

The work on the dry dock has progressed during the year. The contractor, Holbrook, Cabot & Rollins Corporation, has had great difficulty in securing labor, both for the actual work on the dry dock and for cutting the stone at the quarry,

while the prices paid have been largely in excess of those required when the work was started. While negotiations for the sale of the dry dock to the United States were pending the contractor, in expectation of action, renewed his efforts to complete the dock, at a cost greatly in excess of the amount he was receiving from the Commonwealth, so that on December 1 the work under this contract was 70 per cent completed, all the difficult portion of the work finished, with the remaining work not expected to present any unusual difficulties.

Because of the sale of the land along the Reserved Channel to the United States for an army supply base, it was necessary for the dry dock contractor to remove his storehouse and shops, and a large amount of granite and other materials stored on this area. This was accomplished at an expense of \$18,227.80.

The work of furnishing and erecting a pumping plant under contract made July 30, 1917, with the Worthington Pump and Machinery Corporation has advanced so that practically all of the material has been delivered at South Boston, the main pumps set in place, and work is now proceeding on the erection of the remainder of the plant.

On Jan. 23, 1918, a contract was made with the Donnelly Iron Works, Inc., for furnishing and erecting the iron and concrete floors and stairs in the pump well at an estimated cost of \$23,460. This work is well under way, and is expected to be completed in a short time.

On June 19, 1918, a contract was made with the Weiss Construction Company for furnishing materials and erecting a pump house for the pumping machinery at an expense of \$34,554. Owing to the delay in the completion of the foundations of the pump well, the work could not be commenced until November 1, but it is proceeding, and it is expected that it will be completed early in the spring.

On July 1, 1918, a contract was made with the Whiting Foundry Equipment Company for furnishing an overhead crane for handling the machinery in the pump well, for the sum of \$4,150. Work under this contract is well advanced, and the crane will be ready for erection as soon as the foundations are ready for it.

On April 23, 1918, a contract was made with the Bethlehem

Steel Bridge Corporation for furnishing and erecting the steel caisson for closing the entrance to the dry dock, for the sum of \$357,959.13. Owing to war conditions it has been difficult to secure the materials for this work, but the material has now been secured, the fabrication is well under way, and it is expected that the erection will be commenced within a very short time.

The work on the sluice gates under a contract with the Coffin Valve Company has progressed so that the gates have been delivered and deposited, ready to put in place as soon as the masonry is ready to receive them. The cylinders for operating these gates have been completed at the shop, and are ready for delivery as soon as the masonry is ready for them.

The transformers and equipment which are being furnished under a contract with the General Electric Company have been delivered at South Boston, ready to be placed in the pump house as soon as it is ready to receive them.

On Nov. 1, 1918, a contract was made with the Wellman-Seaver-Morgan Company of Cleveland, Ohio, for furnishing and erecting five electric capstans for moving vessels in and out of the dock. These capstans are the same as are being furnished to the United States for the docks at Norfolk and Philadelphia, and are estimated to cost \$13,050 apiece, with a rotary converter to be furnished at a cost of \$8,615 additional. It is expected that these will be ready for delivery before the foundations are ready to receive them.

Commonwealth Pier No. 6 (Fish Pier).

When the lease of the Fish Pier was made to the Boston Fish Market Corporation it provided for the building and paving of the pier, but in view of the fact that the paving was done on fresh filling, with the probability of very uneven settlements occurring, a clause was put into the agreement that the Commonwealth should repave the pier upon the request of the Fish Market Corporation at any time within five years. The five-year period expired in October, 1918, and previous to that the corporation made formal request that the repaving be undertaken.

As the cost of doing work of this character is very high, and a

considerable part of the paving was in very fair condition while other portions were irregular, an agreement was reached by which the brick paving between the two main buildings of the corporation and the edge of the wharf should be repaved on a concrete base with 4-inch granite blocks in place of the original brick paving which was in bad condition, and a portion of the central roadway in front of the cold-storage plant should be relaid on a concrete base, while the repaving of the other portions of the pier, then in fair condition, should be delayed.

In carrying out this understanding a contract was made with Coleman Brothers for doing this work at an estimated cost of \$54,424, the work to include, in addition, the repaving on a gravel base of the solid portion of the ramp between the viaduct and D Street. Work under this contract was well under way at the end of the year, but it was expected that it would be suspended some time in December and not completed until spring.

Installation of Street Railway Tracks across Viaduct.

The work of installing street railway tracks across the viaduct at South Boston to furnish trolley freight facilities to the Commonwealth's property near the Fish Pier was completed in December, 1917, under contracts with C. W. Dolloff & Son and Fred T. Ley Company, Inc., the contract with C. W. Dolloff & Son amounting to \$18,430.97, and the work under the contract with Fred T. Ley Company amounting to \$1,805.73. The rails for the track were furnished by the Barbour-Stockwell Company at a cost of \$14,395, and the other track materials were furnished by the Boston Elevated Railway Company at an expense of \$5,685.45. The cost of supervision and inspection of this work amounted to \$568.16.

Trolley Freight Shed.

The work of building a wooden freight shed, under the contract dated Nov. 22, 1917, with the Gerry & Northup Company, was completed Feb. 11, 1918, at a cost of \$8,976, and the roadway in front of this building was graded at an expense of \$810.19.

Later it was found necessary to pave this roadway, and a

contract was made on July 25, 1918, with Coleman Brothers to do this work at an expense of \$7,500. Work was completed Aug. 27, 1918.

Reserved Channel, Bulkhead.

In developing the property purchased from the Commonwealth on the northerly side of the Reserved Channel at South Boston the United States proceeded to dredge the channel to a depth of 30 and 35 feet at mean low water, excavating therefrom over a million cubic yards of material.

To deposit all this material and to fill and develop land of the Commonwealth on the southerly side of the Reserved Channel, a contract was made with William L. Miller Company, the lowest bidder, to build about 5,000 feet of bulkhead enclosing an area bounded northerly by the Reserved Channel, easterly by Castle Island, southerly by the Marine Park and westerly by Farragut Road. This enclosed an area of nearly 85 acres. Work commenced April 15, 1918, and was nearing completion December 1.

The amount expended to Dec. 1, 1918, was \$142,158.64, the contract price being \$34.19 per linear foot of bulkhead completed.

Boston Army Supply Base.

Early in 1918 the Federal government began its study of the facilities offered by Boston Harbor in connection with overseas shipping, with special reference to the establishment of an army base. Different organizations and individuals submitted proposals to the government for consideration in connection with such a development, but none of such plans appeared to offer a satisfactory answer to the government's needs. Upon request of the department at Washington, the Commission made a careful study of the situation, and on February 9, 1918, presented its recommendations to General Goethals, the Quartermaster General, at Washington, with an offer of land for army needs located on the north side of the Reserved Channel and containing approximately 2,508,910 feet, to be sold to the government at a price fixed as the actual cost of the same to the Commonwealth. This proposal was immediately accepted by the Federal Government and approved by the Governor and Council. The purchase price finally agreed upon was

\$1,317,510.10. In connection with the sale the Commonwealth agreed to build Dry Dock Avenue and Harbor Street. The Army Department began work immediately upon the construction of the largest development to be found in Boston Harbor, providing extensive facilities for storing and shipping, and a deepening of the Reserved Channel to 30 feet. Arrangements were made with the government in connection with the carrying on of this work for the placing of all material upon the area of flats owned by the Commonwealth on the south side of the Reserved Channel, to be retained by a bulkhead to be built at the expense of the Commonwealth.

At the same time a permit was given to the United States to use for storage purposes the land on the northerly side of Dry Dock Avenue, between the lot leased to the Boston Molasses Company and the lot on which is located the dry dock now under construction.

Another permit was given to use for similar purposes the land lying between Summer Street and the Commonwealth's railroad yard and between the viaduct, so called, and E Street, and the lot leased to the Metropolitan Coal Company adjoining Harbor Street.

These permits were for the use of the land for open storage during the continuance of the war and for a period of ninety days thereafter. No charge for this use was made by the Commonwealth.

On the premises bought the United States has established large concrete storage warehouses and wharf sheds, and has built a complete army supply base from which to ship materials overseas to the expeditionary forces. The work on the base is well advanced so that it is expected it will be in active use early in the coming year. The estimated cost of the terminal is \$28,000,000, and it is anticipated that it will be completed at an amount slightly within this estimate.

Use by the United States of Land South of Summer Street.

In order to furnish storage facilities for the depot quartermaster, an arrangement was made for use by the United States of a portion of the area south of Summer Street for the erection of one-story storage buildings and the necessary tracks and

driveways in connection therewith. To serve this area properly with railroad facilities the United States has constructed a series of tracks extending from the South Boston cut, so called, through Cypher Street and into the area occupied by the depot quartermaster. Arrangements are now being made with the United States by which, when they cease to be required for war purposes, these improvements will become the property of the Commonwealth as compensation for the use of the property.

On these improvements the United States has expended about \$1,125,000, has erected on the premises between D and E streets two buildings, one about 987 feet long, and the other about 841 feet long, both 181 feet in width, and has laid on the premises and in connection therewith 8,400 feet of railroad track. The buildings are one story in height, are served by a heating plant and sprinkler system throughout, and lighted by electricity. The railroad tracks are located between the buildings, and there are streets on the opposite sides of the buildings, so that there is no interference between the operation of teams and railroad trains.

In addition to these tracks the United States has laid an additional track about 1,300 feet long in extension southerly of the track built by the Commonwealth last year on a line about 100 feet east of C Street and connected this track with the other tracks in Cypher Street. It has also extended the tracks between its buildings to connect with the industrial track operated under a permit from the Commission, thus forming a circuit by which the government's buildings may be served and at the same time furnishing a practical means of connecting the Commonwealth's track with the railroad tracks through the cut, and giving opportunity for railroad sidings into land on both sides throughout the entire distance from Cypher and Fargo streets.

Naval Coal Supply Depot.

On June 21, 1918, an agreement was made with the United States Navy Department to use for the purpose of handling and storing coal an area of 419,650 square feet of filled land and 15,750 square feet of wharf and 933,600 square feet of flats

bounded by the lot leased to the Metropolitan Coal Company on the east, the lot occupied by the army supply base for a railroad yard on the south, the State railroad yard and the lot leased to the Boston Fish Market Corporation on the west, and the harbor line on the north.

On these premises the Navy Department has constructed railroad tracks, trestles and coal-handling machinery for storing coal brought in by vessels and delivering it to lighters used in coaling naval vessels. The amount paid to the Commonwealth under this agreement is \$1,500 per month from July 1, 1918.

In addition to this property the Navy Department has contracted with the Metropolitan Coal Company for handling and storing naval coal, and its coal-handling machinery is being used in connection with the use of both these lots.

Floating Grain Elevators.

The Commonwealth, at the beginning of the year, owned two floating grain elevators, each with a capacity of something over 20,000 bushels of wheat. No. 1 elevator had been thoroughly overhauled in 1917, while elevator No. 2 was in need of extensive repairs. In view of this fact, upon receipt of a fair offer for elevator No. 2, it was sold on July 1, 1918, for the sum of \$5,700. Elevator No. 1 has not been used during the year, and is tied up at Commonwealth Pier No. 5.

Railroad Freight Yard.

The agreement with the New York, New Haven & Hartford Railroad Company, dated Nov. 15, 1916, for the use of the surplus capacity of the railroad freight yard, provided that the railroad company should install additional drains and track scales for the improvement of the yard, and further provided that one-half the cost of this work should be borne by the Commonwealth. These improvements were made, and one-half of the cost, or \$5,468.11, was paid by the Commonwealth during the year.

Lease to Boston Molasses Company.

On March 15, 1918, there was leased to the Boston Molasses Company a parcel of the Commonwealth's land northerly of Summer Street containing 249,287 square feet; also a pier 400 feet long and 50 feet wide; together with a right of way over a street 35 feet wide, extending from Summer Street to the leased premises adjacent to land leased to the Metropolitan Coal Company, reserving to the lessor, its successors and assigns, the right to lay and maintain tracks over and across the demised premises and to operate a railroad thereon. This lease is for a term of two years and nine months beginning July 1, 1918, the rental being \$18,000 yearly by equal monthly payments.

THE COMMONWEALTH FLATS AT EAST BOSTON.

The property of the Commonwealth at East Boston remains in substantially the same condition as it was a year ago. Very little material has been dumped during the year, as, on account of the activities of the United States government at South Boston, practically all the dredges have been employed there, and the material dredged rehandled into the area lying between the Reserved Channel and the Marine Park. It is expected that early in the season large quantities of material will be brought to East Boston to fill the rehandling basins and such other areas as are available for receiving material, so that an extension of the contract for rehandling material will be necessary to provide reasonable facilities for receiving other material brought from various portions of the harbor. Studies are being made for developing this land and furnishing railroad and teaming facilities. At the present time there is a great demand for large areas with railroad facilities and deep-water approaches for development by industrial concerns, but practically no such areas are now available.

The work under contract with the Atlantic, Gulf & Pacific Company for filling at East Boston, in progress at the beginning of the year, has been continued. During the winter the dredge was taken away and used in connection with the construction of the destroyer plant at Squantum by the United States. In the spring, upon the completion of that work, the

dredge was returned to the Commonwealth's work and was used in rehandling material dredged from the army supply base at South Boston into the area being enclosed on the southerly side of the channel by the bulkhead being built under contract with the William L. Miller Company. For a short time before beginning this work the dredge was engaged in rehandling material at East Boston under its original contract.

Under this contract 4,865,036 cubic yards have been rehandled at an expense of \$752,621.07.

COMMONWEALTH PIER No. 1.

Under the provisions of chapter 267 of the General Acts of 1918 plans and specifications were prepared for a pier 150 feet wide and 400 feet long on the location of the old Eastern Railroad Pier at East Boston, now known as Commonwealth Pier No. 1. On June 19, 1918, a contract was made with William L. Miller Company, the lowest bidder, to build a wooden pile pier with a wooden shed for the sum of \$294,000. On Dec. 1, 1918, the work was about 77 per cent completed.

On Nov. 13, 1918, a contract was made with the J. Caddigan Company, the lowest bidder, to furnish and install plumbing, heating and water services on the pier for the sum of \$5,047. This work was under way Dec. 1, 1918.

To fill the area on the inner end of the pier enclosed by the timber bulkhead, arrangements were made with various contractors to deliver ashes and cinder filling material for the sum of 15 cents per cubic yard. This work was in progress on Dec. 1, 1918.

To Dec. 1, 1918, there had been paid for work at this pier, to the general contractor, \$193,081.07, and for filling, \$435.41, a total of \$193,516.48.

This pier is so planned that the railroad track can be built through the center so that material can be brought to the pier and delivered from it by rail as well as by teams. It is expected that the pier will be completed ready for operation early in the spring.

DREDGING OPPOSITE PROPERTY OF THE SIMPSONS PATENT DRY DOCK COMPANY.

The Simpsons Patent Dry Dock Company complained in October, 1916, that the approaches to its dock were being shoaled by material drifting in from the dredging which the Commonwealth was doing easterly of Jeffries Point. From an examination it appeared that a certain amount of shoaling was taking place, due probably to the material disturbed by the Commonwealth's work in the vicinity. As this shoaling seemed to be unavoidable, and the work was then in progress, action to remedy the difficulty was delayed until the portion of the work then under contract was completed. In the fall of 1918, as the work had reached an advanced stage, arrangements were made to dredge the approaches to the dry docks to restore them to the depth to which they were originally dredged. On Oct. 2, 1918, a contract was made with the Boston Dredging Company to do this dredging. This work is now in progress.

ANCHORAGE BASIN, — REPAIR OF DOLPHINS.

The dolphins marking the anchorage basin at Bird Island have been maintained during the year. One of them was seriously injured and another totally destroyed by the colliding with them of vessels or scows. These dolphins have been replaced at a cost of \$1,200.

CHELSEA CREEK.

Early in the year the dredging by the Commonwealth of 140,000 cubic yards of material in Chelsea Creek, near the premises of the Mexican Petroleum Corporation, was in progress. This was the remaining portion of the work to be done under the contract dated Aug. 9, 1917, with the Atlantic, Gulf & Pacific Company. The main portion of the work under this contract had been done with a hydraulic dredge, but for the remainder a scoop dredge was necessary. This contract was assigned on March 19, 1918, to the Bay State Dredging and Contracting Company, and is being completed by that company. During the year about 40,000 cubic yards were exca-

vated before the dredges were taken off to be used on work for the United States government. In the remainder of the year nothing has been done. It is expected that the work will be recommenced early in the coming year and carried to completion. The contract price for this work is $25\frac{1}{2}$ cents per cubic yard.

SEA WALL AT HOUGH'S NECK, QUINCY.

The work of constructing a sea wall at Hough's Neck, Quincy, under contract of Sept. 18, 1917, with Dennis F. Crowley, was continued during the summer, but not completed on account of the difficulty in securing labor and materials. At the end of the season there remained to be done a portion of the backing, the larger part of the concrete cap, and the rip-rap in front of the wall. It is intended that this shall be completed early in the coming summer. The value of the work done during the year was \$6,459.35.

AIDS TO NAVIGATION.

On April 10, 1918, the Commissioners executed deeds conveying to the United States of America the title of certain areas of land, each 50 feet by 50 feet, in the tidewaters of Boston Harbor, belonging to the Commonwealth of Massachusetts, off Gallups Island, at Castle Rocks, and at the entrance to Winthrop Channel, for the purpose of locating, constructing and maintaining thereon aids to navigation.

THE COMMONWEALTH'S TERMINAL ON WEYMOUTH FORE RIVER AND HAYWARD'S CREEK.

On March 20, 1918, the Commission assented to the subletting for a term extending to the thirty-first day of December, 1920, with an option of renewal for a further period of three years commencing Jan. 1, 1921, by the Fore River Shipbuilding Corporation to the Bethlehem Shipbuilding Corporation, Ltd., of the premises demised by the Commonwealth to the Fore River Shipbuilding Corporation by indenture of lease dated March 28, 1917, provided that said Fore River Shipbuilding Corporation shall not be released from its obligation to perform any of the covenants contained in said lease on its

part to be performed, and that no arrangements now or hereafter made between the Commonwealth and said Bethlehem Shipbuilding Corporation, Ltd., shall release said Fore River Shipbuilding Corporation from said obligations or any of them.

Extracts from the lease of March 28, 1917, may be found in the annual report of the Commission for 1917, pages 28 to 30.

During the year conferences have been held with various parties, formerly owners of property taken by the Commonwealth in March, 1917, and with counsel for such owners, in relation to land damages. In some cases settlement has been made, by reason of this taking, after consultation with and on the advice of the Attorney-General's department.

By chapter 138 of the Special Acts of 1918 the Fore River Shipbuilding Corporation was authorized to sell and convey to any railroad corporation now or hereafter organized under the laws of the Commonwealth the private railroad maintained and operated by it between the line of the New York, New Haven & Hartford Railroad Company at a point in East Braintree, and the property of the Fore River Shipbuilding Corporation in Quincy. This legislation enables the Fore River Shipbuilding Corporation to carry out its agreement of March 28, 1917, to permit this Commission to make such connections between the New York, New Haven & Hartford Railroad and such points upon the land described in the taking made by the Commission in March, 1917, as the Commission may from time to time designate and request in writing.

RIVERS, HARBORS, TIDEWATERS AND FORESHORES,
EXCLUSIVE OF BOSTON HARBOR.

By chapter 481 of the Acts of the year 1909 the Board of Harbor and Land Commissioners was authorized and directed to undertake such work for the improvement, development, maintenance and protection of rivers, harbors, tidewaters and foreshores within the Commonwealth as it may deem to be reasonable and proper, and to expend during the years 1910, 1911 and 1912 a sum not exceeding \$300,000, not more than \$100,000 to be expended in any one year, provided, however, that an unexpended balance in any year may be used in the succeeding year.

This act also provided that the Board shall consider the general public advantage of the proposed work, the local interest therein as manifested by municipal or other contributions therefor, the importance of the industrial or commercial and other interests to be especially served thereby, and any other material considerations affecting the feasibility, necessity or advantage of the proposed work or the expenditure therefor. It was further provided that no work shall be commenced until after a public hearing has been held and a survey and estimate of cost have been made; that a city or town might appropriate money for the improvement of rivers, harbors, tidewaters and foreshores within its jurisdiction, the money so appropriated to be paid into the State treasury, to be expended by the Board for said purposes; and that the city or town might assume liability for all damages to property suffered by any person by any taking of land, or of any right, interest or easement in land within the city or town made by the Board for the purposes authorized by the act. By chapter 642 of the Acts of 1912 the expenditure of a sum not exceeding \$450,000 during the years 1913, 1914 and 1915 was authorized, and by chapter 318 of the Special Acts of 1916 the additional expenditure during the years 1916, 1917 and 1918 of a sum not exceeding \$750,000, making a total appropriation for the period 1910-18, inclusive, of \$1,500,000 for the purposes set forth in the act of 1909.

Petitions under the act of 1909 aforesaid have been filed with the Commission during the year for surveys and improvements in the following localities: Allens Pond, Dartmouth; Bucks Creek, Chatham; Lynn Harbor; Nobscusset Point, Dennis; North River, Scituate; Oak Bluffs; sea walls at the Glades and at the Sand Hills, Scituate; Winthrop Highlands.

Other than the holding of public hearings, and in some cases the making of surveys and estimates of cost, no conclusive action as to allotments has been taken during the year for carrying into effect improvements in these localities except at Nobscusset Point and Oak Bluffs.

For information relating to the work accomplished in the various harbors and rivers throughout the Commonwealth, not specifically described in this report, attention is invited to the annual reports of the former Board of Harbor and Land Commissioners, and to the annual reports of the Commission on Waterways and Public Lands for the years 1916 and 1917; also to the tables in the Appendix, which show localities, character of work, appropriations, contributions and expenditures by the Commonwealth, and certain appropriations and expenditures by the Federal government.

ALLENS POND, DARTMOUTH.

Allens Pond, near Buzzards Bay, in the town of Dartmouth, is a tidal body of water with an area of about 200 acres, situated between Barneys Joy Point and Horse Neck Beach. It has a length of about 8,500 feet, is irregular in width and too shoal for commercial use, but has a sufficient depth at the easterly end for small boats. The outlet is at present near the easterly end of the pond, but there is a westerly drift of the sand on this shore which, together with a weak tidal flow in and out of the pond, results in a general movement of the outlet westerly.

On Dec. 5, 1917, a petition of Benjamin A. Cummings, and others, for the excavation of an outlet channel across the beach and the construction of a suitable bulkhead to preserve the same, was presented. Hearing was held March 13, 1918. A report of the engineer with an estimate of the cost of the

improvement desired has been made, but no further action taken.

Amount expended during the year, \$195.95.

Total expenditure to Dec. 1, 1918, \$195.95.

APPONAGANSETT HARBOR.

On April 10, 1918, the Commissioners executed a deed conveying to the United States of America the title of so much of the land in the tidewaters of this harbor belonging to the Commonwealth of Massachusetts as lies within an area 50 feet by 50 feet at and near the southerly end of the breakwater built by the Commonwealth at Padanaram, in the town of Dartmouth, for the purpose of locating, maintaining and constructing thereon aids to navigation.

BASS RIVER, DENNIS AND YARMOUTH.

The work of repairing the planking to about 600 feet at the outer portion of the easterly jetty at the entrance to Bass River, under contract of Sept. 10, 1917, with John R. Burke, was completed Dec. 6, 1917, at a cost of \$358.12. This work consisted of replacing the planking that had been washed out from the jetty with a new yellow pine planking, adding a new lower stringer of yellow pine 6 inches square, and refastening all the planking for a distance of 600 feet from the outer end.

Amount expended during the year, \$358.12.

Total expenditure to Dec. 1, 1918, \$71,911.34.

BUCKS CREEK, CHATHAM.

On March 13, 1918, hearing was held on petitions of the selectmen of the town of Chatham, and others, for further improvement. No conclusive action has been taken.

BUZZARDS BAY.

On April 10, 1918, the Commissioners executed a deed conveying to the United States of America the title of so much of the land in the tidewaters of Buzzards Bay, belonging to the Commonwealth of Massachusetts, located between Peters Neck

and Bourne Neck, as lies within an area 50 feet by 50 feet, for the purpose of locating, constructing and maintaining thereon aids to navigation.

CONNECTICUT RIVER.

Removal of Old Piers.

In 1916 and 1917 the attention of the Commission was called by various petitions and letters to certain old piers in the Connecticut River about one mile above the Holyoke Dam, constituting dangerous obstructions to navigation.

Hearings and conferences were held in regard to this matter, and reports of the engineer on examination and estimates of cost of removing these obstructions presented.

In January, 1918, proposals for the removal of these piers were received. It being found that the cost of such removal would be excessive, it was concluded, in August, 1918, to arrange for the erection of signals on seven of these old piers, each consisting of an iron standard about 6 feet high with a concrete base holding it securely in place. A red flag is attached to the top of the standard for a day mark, and at night a red lantern is suspended from a short bracket just below the flag.

Hadley.

On July 17, 1918, a contract was made with Daniel O'Connell's Sons for the construction of a diversion wall from the easterly bank of the Connecticut River, and for rip-rapping the bank. The contract price is: for furnishing stone and depositing it in place in the wall on the bank of the river, including all incidental work, \$4.10 per ton, involving the expenditure of about \$8,200.

Up to Dec. 1, 1918, about 75 per cent of the work had been completed.

Amount expended during the year, \$7,040.35.

Total expenditure to Dec. 1, 1918, \$93,405.72.

COTUIT HARBOR.

The work of dredging the channel to this harbor, under contract of June 26, 1917, with John R. Burke, was completed July 30, 1918. The channel previously dredged by the Com-

monwealth from the 8-foot contour in Nantucket Sound to the basin in the harbor south of Bluff Point was made 100 feet wide on the bottom and 8 feet deep at mean low water. In addition a channel was dredged 60 feet wide on the bottom and 8 feet deep at mean low water from the basin south of Bluff Point to the inner harbor, and a berth excavated in front of the public wharf.

The cost of the work was \$25,843.31.

Amount expended during the year, \$26,199.78.

Total expenditure to Dec. 1, 1918, \$58,719.91.

CUTTYHUNK HARBOR.

On April 10, 1918, the Commissioners executed a deed conveying to the United States of America the title of so much of the land in the tidewaters of Cuttyhunk Harbor belonging to the Commonwealth of Massachusetts as lies within an area 50 feet by 50 feet at and near the easterly end of the north jetty built by the Commonwealth, for the purpose of locating, constructing and maintaining thereon aids to navigation.

DEACONS POND HARBOR, FALMOUTH.

On June 3, 1918, a contract was entered into with John R. Burke for redredging the channel to the entrance of this harbor to a depth of 8 feet at mean low water, from the inshore end of the jetties to the town landing, and also, to the same depth, the entrance to a cove on the westerly side of the harbor between the jetties and the town landing. The contract price was 50 cents per cubic yard, measured *in situ*, for dredging the areas and disposing of the dredged material. Work was completed June 25, 1918, at a cost of \$2,000.

On July 5, 1918, a contract was entered into with John R. Burke for dredging an extension northerly of the basin to a depth of 6 feet at mean low water over an area of about 2 acres. Work was completed Oct. 11, 1918, at a cost of \$7,943.

Amount expended during the year, \$10,636.89.

Total expenditure to Dec. 1, 1918, \$71,480.57.

ELLISVILLE HARBOR, PLYMOUTH.

This harbor is a tidal estuary of Cape Cod Bay situated on the easterly side of the main highway from Plymouth to Sagamore, about 5 miles by water from the entrance to the Cape Cod Canal.

Work under contract of Aug. 21, 1917, with Dennis F. Crowley for excavating a channel and basin and rip-rapping the banks of the channel is still in progress. Up to Dec. 1, 1918, about 75 per cent of the work had been completed.

Amount expended during the year, \$32.62.

Total expenditure to Dec. 1, 1918, \$8,206.62.

FALMOUTH HEIGHTS.

On March 13, 1918, hearing was held on a petition of the selectmen of the town of Falmouth, and others, for an extension of protective work in this locality. Subsequently a survey was made of the sea wall previously built by the Commonwealth, and of the shore at the foot of the bluffs westerly of this wall. After a report of the engineer with estimates of cost of the desired protection had been received and conference held with parties in interest, proposals were received on June 5, 1918.

On June 12, 1918, a contract was entered into with William H. Connor for building a concrete sea wall and spur jetties on the shore in front of the bluff and in the place of the sea wall built by the Commonwealth, and which had been partially destroyed, easterly of the bluff at Falmouth Heights. The wall in front of the bluff is to be about 875 feet long between two sections of wall already built. The wall easterly of the bluff consisted of three sections, — two standing more or less out of line and grade, and one overturned on the beach. The standing sections, of a combined length of 794 feet, are to be thrown over on the beach and a concrete wall built back of them with spur jetties in front. A concrete wall about 580 feet long, with spur jetties, is to be built back of the overturned section of wall. The contract prices for the work were: for concrete furnished in place in the walls and jetties, including drain pipes, forms and sheeting and removing same, excavation and backfilling of trenches, disposal of surplus material, and all incidental work,

\$11.65 per cubic yard of concrete measured in place in the completed work; for throwing down the standing sections of the wall, including excavation of sand in front of same, all labor and material and all incidental work, the lump sum of \$1,142.65. This contract involves the expenditure of about \$32,527.75, and the town of Falmouth has contributed \$10,000.

On Dec. 1, 1918, the work was substantially completed.

Amount expended during the year, \$24,256.50.

Total expenditure to Dec. 1, 1918, \$31,120.01.

GLOUCESTER HARBOR.

Aids to Navigation.

On April 10, 1918, the Commissioners executed a deed conveying to the United States of America the title of so much of the land in tidewater belonging to the Commonwealth of Massachusetts as lies within an area 50 feet by 50 feet at and near the outer end of the breakwater built by the Federal government off Eastern Point, Gloucester, for the purpose of locating, constructing and maintaining thereon aids to navigation.

Ledge near Five Pound Island.

On May 1, 1918, a request was received from the Gloucester Master Mariners' Association for the removal of a dangerous rock near Five Pound Island. Upon examination this rock proved to be a part of the rocky shoal lying between the channel and the beacon off the westerly end of this island.

An estimate of the cost of the removal of this ledge has been made, but no further action taken.

Harbor Cove.

On April 5, 1918, a request was received from the city of Gloucester for certain dredging near the public landing. A survey and estimate of cost were made, and the city having contributed \$866, a contract was entered into on June 3, 1918, with Thomas Fitzgibbon to dredge to a depth of 6 feet at mean low water a channel and basin to the public landing at the head of this cove. The contract price is \$2 per cubic yard of material excavated.

On Dec. 1, 1918, the work had been substantially completed. Amount expended during the year at Harbor Cove, \$1,230.20. Total expenditure to Dec. 1, 1918, at Harbor Cove, \$16,900.27. Total expenditure to Dec. 1, 1918, in Gloucester Harbor, \$33,900.45.

HERRING RIVER, HARWICH.

The work of dredging a channel in Herring River, Harwich, under contract of Aug. 21, 1917, with John R. Burke was completed Dec. 27, 1917. This work consisted of dredging a channel 50 feet wide on the bottom and 5 feet deep at mean low water from the 6-foot contour northerly a distance of about 800 feet to the outer end of the westerly jetty, narrowing at this point to 30 feet on the bottom with the same depth, and continuing northerly between the jetties and up the river a distance of about 1,300 feet, making the total length of the dredged channel 2,100 feet. The cost of the work was \$5,925.

Amount expended during the year, \$5,184.63.

Total expenditure to Dec. 1, 1918, \$41,641.32.

LAKE ANTHONY.

A petition filed by the selectmen of Oak Bluffs in 1916 requesting further dredging in Lake Anthony was considered early in the year. Proposals were received on May 8, 1918, and a contract was entered into with the Bay State Dredging and Contracting Company May 17, 1918, for dredging to a depth of 6 feet at mean low water. The contract prices for this work are: for dredging and disposing of the dredged material, 63 cents per cubic yard measured in scows; for excavating boulders in excess of 1 cubic yard and not greater than 5 cubic yards in volume, and disposing of the same, \$18 per cubic yard.

Work was completed Sept. 3, 1918, an area of about $4\frac{1}{2}$ acres in the northerly part of the harbor, also the westerly side of the harbor, having been deepened. A shoal on the southerly side was also removed to the depth of 6 feet at mean low water. The cost of the work was \$14,718.06.

Amount expended during the year, \$15,550.05.

Total expenditure to Dec. 1, 1918, \$62,145.18.

LITTLE HARBOR, MARBLEHEAD.

The work of dredging in this harbor under contract of Sept. 18, 1917, with the George T. Rendle Company for dredging a basin to be located northwest of Gerry Island, and over an area of about 100,000 square feet to a depth of 6 feet at mean low water, was interrupted during the year by the removal of the dredge in use in this harbor for government work.

It is expected that operations will be resumed during the coming spring.

Up to Dec. 1, 1918, about 50 per cent of the work had been completed.

Amount expended during the year, \$5,420.72.

Total expenditure to Dec. 1, 1918, \$6,056.37.

LYNN HARBOR.

On March 13, 1918, hearing was held on a petition of John H. Cogswell for certain dredging in this harbor. No further action has been taken.

MANCHESTER HARBOR.

On March 13, 1918, hearing was held on a petition of the selectmen of Manchester for further dredging. Proposals were received April 17, 1918, and a contract was entered into with the Bay State Dredging and Contracting Company May 1, 1918, for dredging certain shoals in this harbor to a depth of 6 feet at mean low water. The contract prices for this work are: for dredging and disposing of dredged material, 45.5 cents per cubic yard, scow measurement; for dredging bowlders in excess of 1 cubic yard and not greater than 5 cubic yards in volume, \$15 per cubic yard.

Up to Dec. 1, 1918, about 80 per cent of the work had been completed.

The town of Manchester has made a contribution of \$3,500 toward the cost of this work.

Amount expended during the year, \$4,902.59.

Total expenditure to Dec. 1, 1918, \$86,776.53.

NANTUCKET HARBOR.

On April 10, 1918, the Commissioners executed a deed conveying to the United States of America the title of so much of the land of the Commonwealth of Massachusetts as lies within an area 50 feet by 50 feet at and near the northwesterly end of the east jetty built by the Federal government at the entrance to Nantucket Harbor, for the purpose of locating, constructing and maintaining thereon aids to navigation.

NEW BEDFORD STATE PIER.

By chapter 693 of the Acts of 1914 the Board of Harbor and Land Commissioners was authorized to reconstruct and extend the present southerly pier owned by the city of New Bedford, and to reconstruct the pier adjoining the same on the north; to build sheds or other buildings on said piers, and to provide the necessary equipment and appliances for handling freight and receiving passengers; to also fill solid and dredge and to do such other work as might be necessary to carry out the purposes of the act for the improvement of the harbor and terminal facilities of the city of New Bedford. The appropriation was \$350,000.

The original contract for this pier was made with the W. H. Ellis & Son Company Jan. 5, 1915. Attention is called to the annual reports of this Commission for 1916 and 1917.

Fire-extinguishing Apparatus. — The work of equipping the steel shed with a dry pipe system of automatic sprinklers and fire-extinguishing apparatus under contract of Oct. 2, 1917, with the General Fire Extinguisher Company of Massachusetts was completed April 11, 1918, at a total cost of \$7,360.

Electric Hoists. — The pier has been equipped with 4 electric hoists at a total cost of \$3,063.75.

Electric Light and Power System. — On Dec. 5, 1917, a contract was made with G. H. T. Brown & Co., Inc., for furnishing and installing an electric light and power system in the steel shed. Work was completed June 4, 1918, and included the installation of three rows of lights on each floor of the shed, with outside flood lights, connections for cargo lights, and a

power line on the second floor for operating the electric whip hoists. The total cost of the work was \$4,781.70.

Loading Platform. — A loading platform, covering an area of 12,059 square feet, has been built on the south side of the pier, under an arrangement with F. B. Sistare & Son, at a cost of about $33\frac{3}{4}$ cents per square foot.

Pent Houses. — Two pent houses and a fire curtain on roof trusses have been built under an arrangement with J. Buchan at a cost of \$322.87.

Hose Houses. — Three hose houses have been built over the private hydrants on the pier, under an arrangement with F. B. Sistare & Son, at a cost of \$318.

Additional Facilities. — In October, 1918, the Commission took up the matter of providing additional facilities at this pier, a report of W. F. Williams, engineer, on this subject, containing estimates of cost, having been prepared.

On Nov. 1, 1918, a contract was entered into with the J. W. Bishop Company for building a one-story freight shed of wood with outside platforms, including a floor at the platform level in the shed at the head of the pier; widening the concrete platforms under the present shed at the end of the pier; paving track space and driveway between the railroad and the buildings with concrete.

The contract prices for this work are: —

For furnishing all the labor and materials and erecting complete a one-story freight shed, outside platforms and floor in the immigration shed, as per plans, and all incidental work, the estimated sum of \$45,487; provided, however, that the total cost shall be the actual cost of labor and materials plus 7 per cent of such cost; and provided, also, that no charge shall be made for the use of large equipment or plant, or for general supervision, or for any "overhead charges" except premiums on accident insurance.

For furnishing all the labor and materials and building concrete foundations to the shed and platforms and a cement concrete pavement, including excavating and grading and all incidental work, the estimated sum of \$11.29 per cubic yard of concrete measured in place; provided, however, that the total cost shall be the actual cost of said labor and materials plus 7

per cent of such cost; and provided, also, that no charge shall be made for the use of large equipment or plant, or for general supervision, or for any "overhead charges" except premiums on accident insurance.

For furnishing all the labor and materials and building a reinforced concrete extension to both platforms in the steel shed at the end of the pier, including placing and removing forms and all incidental work, the estimated sum of \$27.82 per cubic yard of concrete measured in place; provided, however, that the total cost shall be the actual cost of said labor and materials plus 7 per cent of such cost; and provided, also, that no charge shall be made for the use of large equipment or plant, or for general supervision, or for any "overhead charges" except premiums on accident insurance.

This contract provides that the whole work shall be performed on or before Jan. 1, 1919.

The total amount involved in this contract is approximately \$64,000.

Up to Dec. 1, 1918, about 25 per cent of the work had been completed.

Operations during the Year. — From Nov. 28, 1917, to Nov. 30, 1918, miscellaneous dockage has been provided at 67 different periods of time ranging from 1 to 83 days; for barges, 235 days; scows, 35 days; tugs, 18 days; lighters, 14 days; bark, 83 days; schooners, 226 days; steamers, 31 days; and lightships, 20 days, making a total period of 662 days. Vessels of the army and navy have used the pier at various times for which no charge was made, and they are not included in the above list. In addition, the steamer "Harald" discharged a cargo of 4,791 bales of sisal from Progreso, Yucatan, December 6 and 7, sailing December 15; the steamer "Kronstad" discharged a cargo of 7,004 bales of sisal from the same port December 21 and 22, sailing on the latter date; the steamer "Gooiland" discharged a general cargo, between April 12 and 23, of about 1,800 tons for the United States Shipping Board, of which 1,160 tons were placed in storage on the pier; the steamer "Ameland" discharged cargoes of cotton between April 24 and 30, and June 1 and 8; and the steamer "Ryndyk" discharged a cargo of cotton between April 24 and May 8. Included in the above list of vessels

are three schooners from the Cape de Verde Islands which landed 195 passengers, the receipts being \$48.75.

On and after July 1, 1918, the minimum rate for dockage of all vessels of 125 feet or less in length, not loading or discharging, was fixed at \$5 per day. The rates for freight discharged or received have been established as 10 per cent less than the classification in use in Boston and published by the A. T. Howard Company Dec. 1, 1917.

The Island Oil and Transport Corporation of New York used the pier from June 24 to November 25, paying \$8,069.24 for rental and dockage, and \$321.75 for 2,139,280 gallons of water.

The total amount of water supplied to vessels was 2,308,915 gallons at a charge of \$544.56. Miscellaneous receipts for use of raft and electricity amounted to \$23.

The receipts and outstanding bills for the operation of this pier for the year are as follows: —

Dockage,	\$3,535 66	
Wharfage,	9,069 24	
Storage,	5,869 39	
Water,	661 35	
Passengers,	48 75	
Miscellaneous,	23 00	
	<hr/>	\$19,207 39

The expenditures for the year are as follows: —

Construction,	\$20,307 94	
Equipment,	4,084 74	
Operation and maintenance,	5,937 45	
	<hr/>	\$30,330 13

Amount expended during the year, \$30,330.13.

Total expenditure to Dec. 1, 1918, \$362,818.24.

NOBSCUSSET HARBOR, DENNIS.

On March 13, 1918, hearing was held on a petition of A. L. Crowell for an increase in height of the breakwater built by the Commonwealth at Nobscusset Point. After a report of the engineer on examination of the locality, a contract was entered into Nov. 6, 1918, with Jehiel R. Crosby and Joyce Taylor, for building a rip-rap wall against the southerly side of the shore

section of the timber bulkhead, and the excavation of the channel and basin back of the same. The channel is to be 30 feet wide on the bottom and about 300 feet long, and the basin is to have an area of about 16,000 square feet.

The contract prices for the work are: for furnishing stone and placing the same in the wall, \$3.85 per ton of 2,000 pounds; for excavating the channel and basin and disposing of the dredged material, 50 cents per cubic yard, measured *in situ*. Work is now in progress.

Amount expended during the year, \$487.01.

Total expenditure to Dec. 1, 1918, \$18,438.48.

NORTH RIVER, SCITUATE.

On July 29, 1918, the Commission considered a request of the Boston Sand and Gravel Company for dredging by the Commonwealth to deepen the entrance to North River and the channel to the plant of this company on North River and Herring Creek. A report of the engineer with estimates of the cost of the dredging has been made, but no further action taken.

OAK BLUFFS.

On March 13, 1918, hearing was held on a petition of the selectmen of the town of Oak Bluffs for the construction of a sea wall along Sea View Avenue in the southerly part of the town. After a report of the engineer with estimates of the cost had been considered, proposals were received, and on June 10, 1918, a contract was entered into with the Thomas Cavanagh Company for repairing and extending this wall.

A new reinforced concrete face and parapet is to be added to the present wall for a distance of about 500 feet northerly from the southerly end, and a new wall 100 feet long built at the southerly end of the present wall. The contract prices are: for concrete furnished in place, the sum of \$20 per cubic yard of concrete measured in place in the completed work; for spruce, white oak or red oak piles furnished, 70 cents per linear foot of piles driven; for timber caps, sheeting, ties, etc., \$140 per 1,000 feet B. M., in place.

A contribution of \$2,500 has been made toward the cost of this work by the town of Oak Bluffs. A portion of the wall

which will be within the limits of the State highway will be paid for by the Massachusetts Highway Commission.

Work was completed Nov. 2, 1918, at a cost of \$16,901.15.

Amount expended during the year, \$18,486.

Total expenditure to Dec. 1, 1918, \$18,486.

PAMET RIVER, TRURO.

In March, 1918, the Commission further considered a petition of C. W. Snow, and others, for the improvement by the Commonwealth of this river by dredging and the building of jetties. After considering a report by the engineer with estimates of the cost of improvement, proposals were received on July 12, 1918, and on Oct. 7, 1918, a contract was entered into with the Bay State Dredging and Contracting Company for dredging a channel through the marsh and beach west of the railroad bridge; dredging a basin west of the railroad station at Truro; building jetties at the entrance to the channel; rip-rapping the banks of the channel through the beach; and building dikes and rip-rapping the face of the same. The channel is to be 60 feet wide on the bottom and 6 feet deep at mean low water. The basin is to be about 150 feet by 600 feet on the bottom, and 6 feet deep at mean low water.

The contract prices are: for dredging channel and basin and disposing of the dredged material, including bowlders 1 cubic yard or less in volume, and all incidental work, the sum of 70 cents per cubic yard of material dredged and measured *in situ* or in scows; for furnishing the stone and depositing it in place in the jetties and on the slopes of the banks and dikes, including sloping the banks of the channel and dikes to receive the rip-rap, and all incidental work, the sum of \$5.60 per ton of stone in place within the limits of the jetties and on the slopes of the banks and dikes; for furnishing the materials and building a sod dike, if the excavation is performed with a suction dredge, including maintenance and all incidental work, the actual cost of said work plus 15 per cent of such cost; provided, however, that the total cost shall not exceed the sum of \$5,000 based upon the construction of a dike 1,500 feet in length.

The amount involved in this contract is approximately

\$152,840, and it is a condition of this contract that the value of the work performed in accordance with its terms and the requirements of the specifications, prior to Dec. 1, 1918, shall not exceed the sum of \$50,000, and that the whole of the work called for shall be completed on or before Dec. 1, 1919. It has been agreed that work shall be commenced not later than April 1, 1919.

Amount expended during the year, \$102.01.

Total expenditure to Dec. 1, 1918, \$1,566.73.

PLYMOUTH HARBOR.

On March 13, 1918, hearing was held on a petition of the selectmen of the town of Plymouth for further improvement. A report of the engineer with estimates of cost of additional dredging has been made, but no further action taken.

POWOW RIVER, AMESBURY.

On March 6, 1918, the Commission considered a complaint alleging that a portion of a sea wall had fallen into the channel of the river below the Main Street bridge, obstructing navigation and interfering with the use of a portion of the river by coal barges. After a report of the engineer with estimates of cost had been prepared, proposals were received on April 17, 1918, but as they were deemed excessive none was accepted. Subsequently a contract was entered into on July 13, 1918, with John H. Moran to carry out the required work for the lump sum of \$450.

Work was completed Nov. 18, 1918, at a cost of \$404.

Amount expended during the year, \$431.64.

Total expenditure to Dec. 1, 1918, \$431.64.

PROVINCETOWN HARBOR.

In accordance with the provisions of chapter 21 of the Resolves of 1917 the Commission submitted to the General Court on Jan. 2, 1918, a special report in relation to the advisability of changing the harbor lines in this harbor. (See House Document No. 8 of 1918.)

SANDWICH HARBOR.

Work under contract of Sept. 18, 1917, with the Bay State Dredging and Contracting Company for dredging and other work in this harbor was completed Dec. 14, 1917.

A channel about 50 feet wide on the bottom and 6 feet deep at mean low water was dredged from the outer end of the jetties to the basin, a distance of 1,000 feet, and about 806 tons of stone rip-rap placed on the westerly bank of the channel at the turn into the basin. A large part of the dredged material was deposited on the easterly side of the channel to build a dike across the old channel to confine the tidal flow to the new channel. The bank on the westerly side of the channel was rip-rapped from the toe of the slope to the crest for a distance of about 200 feet on the curve into the basin. The cost of the work was \$14,207.65.

In order to protect the work previously done at this harbor it became necessary to build a timber bulkhead about 100 feet long from the crest of the beach to the inshore end of the westerly jetty. Under an arrangement with F. B. Howes this bulkhead was built of two rows of planking 2 feet apart and the interior filled with sand, at a cost of \$269.75.

Amount expended during the year, \$5,286.77.

Total expenditure to Dec. 1, 1918, \$72,850.52.

SCITUATE SEA WALLS.

The Glades. — On March 13, 1918, hearing was held on a petition of Walter Haynes, and others, for the construction of some form of protection, breakwater or jetty in front of the concrete sea wall between Damons Island and the Glades at North Scituate. A report of the engineer with estimates of the cost of the work has been made, but no further action taken.

Sand Hills. — On March 13, 1918, hearing was held on a petition of C. B. Dillard for the construction of a sea wall at the Sand Hills. A report of the engineer with an estimate of the cost of the work has been made, but no further action taken.

SESUIT HARBOR, DENNIS.

On March 13, 1918, hearing was held on a petition of David H. Sears, and others, for the improvement of this harbor. Proposals for dredging were invited, but on the date specified no bids based on a yardage price, in accordance with the specifications, were received. No further action has been taken.

VINEYARD HAVEN.

In July, 1917, complaint was received by the Commission as to the condition of a sea wall built by the town in front of the highway between Oak Bluffs and Vineyard Haven. An examination and report of the engineer showed this wall to be badly eroded and much in need of protection. On Aug. 20, 1918, a contract was entered into with James H. Norton for the construction of a reinforced concrete base to this wall. The contract price for this work was: for concrete furnished in place, including reinforcing steel, preparation of wall, repairs to wall above the base, furnishing and placing form and removing same, excavating and replacing rip-rap, disposal of surplus material and all incidental work, the sum of \$21 for each cubic yard of concrete measured in the completed work.

Toward the cost of this work the town of Tisbury made a contribution of \$1,000.

Work was completed Oct. 28, 1918, at a cost of \$1,838.55.

Amount expended during the year, \$1,872.99.

Total expenditure to Dec. 1, 1918, \$11,266.11.

WAQUOIT BAY, FALMOUTH AND MASHPEE.

Work under contract of Aug. 2, 1916, with John R. Burke was completed Sept. 19, 1918, and consists of a stone breakwater about 450 feet long, built on the easterly side of the entrance to this bay; a rip-rap wall about 300 feet long; and a timber bulkhead 400 feet long, with spur jetties of a combined length of 338 feet. The purpose of these structures is to stop the erosion of the beach on the easterly side of the entrance, and confine the tidal currents so as to deepen and maintain a channel through the bar. Since the completion of the work the

channel has materially deepened and apparently taken a definite location parallel to the breakwater. The cost of the work was \$17,932.57.

Amount expended during the year, \$8,221.18.

Total expenditure to Dec. 1, 1918, \$20,269.58.

WARRENS COVE, PLYMOUTH.

An examination of the concrete wall built along the shore of this cove under contract of Nov. 5, 1915, with Dennis F. Crowley, disclosed injury by frost to the surface of the top of the wall for a distance of about 300 feet. Under an arrangement with James M. Downey the necessary repairs were made during the year at a cost of \$298.27.

Amount expended during the year, \$2,298.27.

Total expenditure to Dec. 1, 1918, \$24,461.22.

WEST BAY, BARNSTABLE.

On March 13, 1918, hearing was held on a petition of C. A. Driscoll for extending and repairing the jetties built by the Commonwealth at the entrance to this bay and for dredging. No further action has been taken.

WESTFIELD RIVER.

By chapter 128 of the Resolves of 1916 the Legislature authorized and directed the Board of Harbor and Land Commissioners to expend not exceeding \$5,000 for placing rip-rap on the banks of the Westfield River, and for such other work for the protection, regulation and control of the river as the Board may deem necessary or advisable.

Under a contract of Oct. 16, 1917, with the Woronoco Construction Company, referred to in the report of the Commission for 1917, four rip-rap jetties have been built about 100 feet apart, and projecting into the river from the top of the bank about 50 feet, for the purpose of diverting the force of the current more to the middle of the river to stop the present erosion of the bank which was threatening to destroy the easterly abutment of the old county bridge. Since this work was com-

menced the channel opposite the first jetty above the bank has moved 15 to 20 feet away from the bank. The total cost of the work, which was completed July 15, 1918, was \$4,544.03.

Amount expended during the year, \$4,593.43.

Total expenditure to Dec. 1, 1918, \$4,740.39.

WOODS HOLE GREAT HARBOR.

On April 10, 1918, the Commissioners executed a deed conveying to the United States of America the title of so much of the land in the tidewaters of Woods Hole Great Harbor, belonging to the Commonwealth of Massachusetts, as lies within an area 50 feet by 50 feet at or near Middle Ledge, and an area 50 feet by 50 feet at or near Grassy Island, for the purpose of locating, constructing and maintaining thereon aids to navigation.

YARMOUTHPORT HARBOR.

On March 13, 1918, hearing was held on petitions of the selectmen of Yarmouth, and others, for dredging in this harbor. Proposals for the work were received on April 17, 1918, and a contract with the Bay State Dredging and Contracting Company was entered into on Oct. 7, 1918, for dredging a channel not less than 50 feet wide on the bottom and 6 feet deep at mean low water, extending from the 6-foot contour on the easterly side of the main channel in Barnstable Harbor about 5,200 feet to the town landing at the mouth of Mill Creek in Yarmouth. The amount of material to be removed, including the required slopes, is estimated to be about 83,000 cubic yards, scow measurement.

The contract provides that the work shall be completed on or before Dec. 1, 1919, and the contract prices are: for dredging the channel and disposing of the dredged material, including boulders 1 cubic yard or less in volume, the sum of 85 cents per cubic yard of material excavated and measured in the scows in which it is placed for transportation to the dumping ground; for excavating boulders in excess of 1 cubic yard and not greater than 5 cubic yards in volume, and disposing of the same, the sum of \$15 for each cubic yard.

The town of Yarmouth has made a contribution of \$2,000, and private parties have promised a contribution of \$5,000, toward the cost of this improvement, which is estimated to be about \$70,550. It has been agreed that work shall be commenced not later than April 1, 1919.

Amount expended during the year, \$19.32.

Total expenditure to Dec. 1, 1918, \$341.24.

MISCELLANEOUS MATTERS.

GREAT PONDS.

Jurisdiction over great ponds belonging to the Commonwealth, these ponds containing in their natural state 10 or more acres of land, was conferred upon the former Board of Harbor and Land Commissioners by chapter 318 of the Acts of 1888, and further authority given that Board, by chapter 379 of the Acts of 1904, to sell and convey or lease any of the islands owned by the State in the great ponds, subject to the approval of the Governor and Council.

During the year the Commission has made examinations, held conferences or taken other proceedings relative to Black Pond, Brewster; Clear Pond, Carver; Comet Pond, Hubbards-ton; Dunham Pond, Carver; Lake Winthrop, Holliston; Martins Pond, North Reading; Moreys Hole Pond, Plymouth; Morse Pond, Wellesley.

A list of the lakes and ponds of the State with areas of 10 or more acres, given by counties, is printed in the report of this Commission on "Water Resources of Massachusetts, 1918."

CONSERVING AND EQUALIZING THE FLOW OF WATER IN RIVERS
AND STREAMS.

Under date of Feb. 15, 1918, the Commission submitted to the General Court a special report on water resources of the Commonwealth of Massachusetts concerning their conservation and utilization, together with the report of the engineer of the Commission, the same being printed as Senate Document No. 289 of 1918.

By chapter 71 of the Resolves of 1918 the Commission was authorized to continue the investigation of the matters of conserving, utilizing and equalizing the flow of water in the rivers and natural streams of the Commonwealth, and to expend not exceeding \$10,000 in addition to the unexpended balance of the appropriation made to carry on the investigation authorized by chapter 113 of the Resolves of 1915.

By chapter 87 of the Resolves of 1918 a special commission on the water resources of the Commonwealth of Massachusetts was created, including in its membership the chairman of the Commission on Waterways and Public Lands, to investigate the water resources of the Commonwealth, and to report to the General Court of 1919.

Under authority of chapter 71 of the Resolves of 1918 aforesaid there was expended to Dec. 1, 1918, \$4,591.80.

PROVINCE LANDS.

The territory known as the Province Lands in Provincetown, belonging to the Commonwealth, and over which the former Board of Harbor and Land Commissioners were given general care and supervision by the provisions of chapter 470 of the Acts of 1893, comprises about 3,290 acres lying northerly and westerly of the line described in that act.

Reclamation work in these lands was begun in 1894, and has been carried on under the direction of a superintendent during each succeeding year. To prevent movement of the sand two methods are used. The barren dunes are covered first with brush or planted with beach grass. This grass is pulled in bunches about 2 inches thick for transplanting in rows about 4 feet apart and 6 inches deep, and so transplanted lives between four and five years. The work of planting grass and of brushing the dunes is followed and reinforced by the transplanting of trees and shrubs. Operations of this character on these lands for the past five years may be summarized as follows: —

In 1914 about 40 acres were covered with brush, and 27,362 seedling pines, 9,050 Scotch broom, 10,250 spruce, 2,100 locust and 30 catalpa transplanted.

In 1915 about 42 acres were covered with brush, and 2,400 seedling pines, 8,500 Scotch broom and 12,400 black locusts transplanted.

In 1916 about 39 acres were covered with grass, and 13,000 pines on the sod and 12,000 Scotch broom transplanted.

In 1917 about 45 acres of sand dunes were covered with brush, and about 5 acres of bayberry transplanted. A thorough clearance was made of gypsy moths.

During the year ending Nov. 30, 1918, in March and April

considerable time was spent in destroying gypsy moths. Good results followed, especially on the westerly portion of the lands. The easterly portion was found to be considerably affected, and it was proposed that work be resumed there during the winter of 1918-19.

Planting operations were commenced about the middle of April, 1918. The season, however, was not favorable by reason of a drought, which continued the remainder of the planting season. The results were the transplanting of 20,000 pines. About 28 acres of sand dunes have been covered by brush. This acreage would have been larger but for the fact that the brush had to be hauled a long distance. During the fall of 1918, 5 acres of bayberry were transplanted. All of the stock planted during the last four or five years is growing vigorously.

About 50 acres of these lands remain at the present time unimproved.

In 1913 and 1914 a road built between the years 1893 and 1902 for a distance of about 10,200 feet across these lands was repaired by the Massachusetts Highway Commission acting under authority of chapter 88 of the Resolves of 1913.

In 1914 the State Forester made an inspection of these lands in company with the Board of Harbor and Land Commissioners, and at the request of the Board submitted reports with recommendations as to building over the forested area with evergreens, and with suggestions in the matter of gypsy and brown-tail moth destruction. Co-operation of the State Forester's department in supplying the necessary stock for planting was also offered.

In June of that year an employee was sent by the State Forester to the Province Lands to direct the work against the gypsy and brown-tail moths. Subsequently 27,362 seedling pines, 10,250 spruce, 30 catalpa and 14,500 locust were sent from the State Nursery for use upon these lands.

The Commissioners on Fisheries and Game in the same year made an inspection of the Province Lands in company with the Board of Harbor and Land Commissioners. The Commissioners later offered to co-operate in stocking these lands, and made certain suggestions relative to methods. From that department the Province Lands has received 50,000 black bass, 97 mallard

ducks, 36 pheasants and 24 quail. During extreme weather of December, 1917, the Commissioners on Fisheries and Game forwarded a quantity of feed suitable for the birds on these lands. The fish and ducks were distributed in ponds upon the territory, and feeding stations and bird houses have been established for the birds.

Because of the work done in the stocking of these lands the provisions of chapter 362 of the Acts of 1909 were applied to these lands forbidding the killing of wild birds and game, and notices of this act are posted on the land.

The sum of \$153.15 has been paid into the State treasury during the year, being the amount received from licenses issued to various parties to cultivate and pick cranberries on the bogs, and to mow meadow lands.

Amount expended during the year, \$3,907.68.

Total expenditure to Dec. 1, 1918, \$75,766.47.

MASSACHUSETTS ATLAS SHEETS AND TOWN BOUNDARY ATLASES.

Under authority of chapter 57, Resolves of 1890, chapter 42, Resolves of 1891, chapter 360, Acts of 1900, and chapter 69, Resolves of 1915, 2,155 atlas sheets of the map of the Commonwealth and 3 town boundary atlases have been sold during the year ending Nov. 30, 1918, for which \$316.50 was received and forwarded to the Treasurer and Receiver-General.

Sixty-eight atlases have been delivered during the year under the authority of chapter 360, Acts of 1900, as amended by chapter 484, Acts of 1909.

The edition of the corrected atlas sheets comprising the topographical map of Massachusetts, authorized by chapter 69 of the Resolves of 1915, was completed in July, 1918. A total of 105,960 sheets was printed.

RE-ESTABLISHMENT OF CERTAIN TRIANGULATION POINTS.

By chapter 223 of the General Acts of 1915 the Board of Harbor and Land Commissioners was authorized to make such surveys and do such other work as may be required by any order of the Land Court, to re-establish and permanently mark certain stations previously established in connection with the

topographical survey of the Commonwealth and the town boundary survey, which have been lost or destroyed, and to obtain the geographical position of such new points and stations as may be required from time to time by the court. The Board was allowed to expend not exceeding \$1,000 from the sum of \$1,500 which may be annually paid out of the State treasury.

The Commission reports that during the year ending Nov. 30, 1918, the location of the following triangulation stations was determined and their geographical positions furnished to the Land Court: 12 stations in the town of Edgartown and on Chappaquiddick Island; 11 stations in the city of Chelsea; 15 stations in the town of Winthrop; 28 stations in the town of Scituate.

Amount expended during the year, \$996.84.

Total expenditure to Dec. 1, 1918, \$3,738.77.

CAPE COD CANAL.

Under the provisions of chapter 448 of the Acts of 1899, incorporating the Boston, Cape Cod & New York Canal Company, the Board of Railroad Commissioners and the Board of Harbor and Land Commissioners were constituted a Joint Board for the purposes defined in said act. The Commission on Waterways and Public Lands, since Aug. 3, 1916, have, with the Public Service Commission, exercised the powers and duties of the Joint Board. John N. Cole was elected chairman of the Joint Board on Aug. 30, 1916.

The act of 1899 was amended by chapter 476 of the Acts of 1900. Additional legislation is contained in chapter 519 of the Acts of 1910, and in chapter 184 of the General Acts of 1917. Statements covering previous proceedings of the Joint Board, the Board of Harbor and Land Commissioners, the Commission on Waterways and Public Lands, and the Joint Commission established by chapter 184 of the General Acts of 1917, with reference to this canal, are contained in the reports of the Board of Harbor and Land Commissioners for the years 1907, pages 98 to 104; 1909, pages 17 to 19; 1910, pages 34 to 38; 1911, pages 65 to 68; 1912, pages 74 to 77; 1913, pages 160 to 162; 1914, pages 87 to 91; 1915, pages 106 to 108; and in the

reports of the Commission on Waterways and Public Lands for the years 1916 and 1917, pages 99 to 101, and 58 to 62.

Under the contract of March 27, 1907, between the canal company and the Cape Cod Construction Company, approved by the Joint Board June 3, 1907, the construction company was to receive \$11,990,000, payable, as to \$5,990,000 thereof, in shares of the capital stock of the canal company of the par value of \$100 each, and \$6,000,000 in bonds for building the canal.

At a meeting of the Joint Board Jan. 25, 1918, the following votes and orders were passed and issued:—

Voted, That the Joint Board approves the finding of its Engineer that the fair and reasonable cost of a dredge and equipment suitable for dredging the canal and its approaches in the most efficient manner as called for by the contract and specifications and not turned over to the Canal Company by the contractor is one hundred fifty thousand (150,000) dollars, and determines that because of the nonfulfillment by the Construction Company of the provisions of the contract in respect thereto stock and bonds to that amount be deducted from the contract price which the Boston, Cape Cod and New York Canal Company is required to pay to the Cape Cod Construction Company under the contract between said Canal Company and said Construction Company dated March 27, 1907, and approved by the Joint Board June 3, 1907.

Voted, That the Joint Board approves the finding of its Engineer that the amount of dredging required to be done under the contract and specifications between the Boston, Cape Cod and New York Canal Company and the Cape Cod Construction Company dated March 27, 1907 and approved by the Joint Board June 3, 1907, for providing passing places in the canal in accordance with the plans of the canal approved by the Board of Harbor and Land Commissioners and not constructed, would amount to four hundred seventy thousand (470,000) cubic yards, which, at the fair and reasonable cost of thirty (30) cents per cubic yard, would be equivalent to one hundred forty-one thousand (141,000) dollars, and that by reason of the nonfulfillment of the provisions of said contract with respect to such passing places stock and bonds to the amount of one hundred forty-one thousand (141,000) dollars be deducted from the contract price which said Canal Company is required to pay to said Construction Company under said contract of March 27, 1907.

Voted, That the following Order be and the same is hereby adopted, and that it be signed by the members of the Joint Board, and that a certified copy of said Order attested by the Clerk of the Joint Board be sent to said Canal Company.

The Commonwealth of Massachusetts

IN BOARD OF PUBLIC SERVICE COMMISSIONERS AND COMMISSIONERS ON
WATERWAYS AND PUBLIC LANDS SITTING AS A JOINT BOARD JAN-
UARY 25, 1918.

The Cape Cod Construction Company having made application to the Boston, Cape Cod and New York Canal Company under the terms of the contract between said two corporations for the issue of the amounts of stocks and bonds hereinafter certified, and it appearing upon examination and report by the Engineer of the Joint Board that the requisition is proper and reasonable, this Board hereby certifies in accordance with and as required by the Act of 1899, chapter 448, as amended by the Act of 1900, chapter 476, that the work and materials covered by the application hereinbefore referred to have been done and furnished in the construction and equipment of the canal, and in accordance with the terms of said contract, and this Board further certifies and approves the issue of additional stock and bonds amounting to one thousand one hundred thirty (1,130) shares of capital stock of the par value of one hundred (100) dollars each and one hundred fourteen thousand (114,000) dollars in bonds, in payment thereof and as reasonably requisite therefor, being the full amount of the balance of the contract price due and payable in stock and bonds after making proper deductions aggregating two hundred ninety-one thousand (291,000) dollars as required by the two foregoing votes.

FREDERICK J. MACLEOD,
EVERETT E. STONE,
JOHN F. MEANEY,
JOSEPH B. EASTMAN,
CHARLES A. RUSSELL,
Public Service Commission.

JOHN N. COLE,
JESSE B. BAXTER,
WILLIAM S. McNARY,
Commission on Waterways and Public Lands.

Voted, That the Joint Board approves the finding of its Engineer that the dredging done by the Boston, Cape Cod and New York Canal Company in widening the ends of the Boston, Cape Cod and New York Canal amounts to seven hundred twenty-three thousand (723,000) cubic yards, which, at the fair and reasonable cost of thirty (30) cents per cubic yard, amounts to two hundred sixteen thousand, nine hundred (216,900) dollars, and the Joint Board finds that this is extra work for labor and materials .

performed and furnished by the Cape Cod Construction Company for said Canal Company additional to that called for by the contract and that proper allowance should be made therefor to said Construction Company; that the Joint Board further finds that other extra work for labor and materials have been performed and furnished by said Construction Company for said Canal Company in the construction and equipment of the canal additional to that called for by the contract to the amount of one hundred forty thousand, four hundred thirty-nine and eighty-one hundredths (140,439.81) dollars, which amount includes a profit of ten (10) per cent to the Contractor, as shown in a requisition dated February 24, 1916, and that proper allowance should be made to said Construction Company therefor, but that the Joint Board further finds that the Canal Company has not yet installed and maintained a crossing by a passenger and vehicular ferry at Bournedale as required by the Order of this Joint Board nor availed itself of the benefit of the substitute method provided under chapter 184 of the General Acts of 1917, and determines that the said Canal Company is entitled at this time to issue stock and bonds in payment on account of the aggregate amount three hundred fifty-seven thousand, three hundred thirty-nine and eighty-one hundredths (357,339.81) dollars for said extra work to the respective amounts of one hundred twenty thousand (120,000) dollars in stock and one hundred twenty-one thousand (121,000) dollars in bonds, being the difference between the total amount of stock and bonds which said Canal Company is entitled by law to issue and the amount of stock and bonds heretofore authorized to be issued, after reserving as a reasonably sufficient amount fifty thousand (50,000) dollars in stock and bonds for future issue upon the completion and maintenance of said ferry, or in the alternative upon the construction and operation of a street railway in substitution therefor under the provisions of said chapter 184.

Voted, That the following Order be and the same is hereby adopted, that it be signed by the members of the Joint Board, and that a certified copy of said Order attested by the Clerk of the Joint Board be sent to the said Canal Company.

The Commonwealth of Massachusetts

IN BOARD OF PUBLIC SERVICE COMMISSIONERS AND COMMISSIONERS ON
WATERWAYS AND PUBLIC LANDS SITTING AS A JOINT BOARD JANUARY
25, 1918.

The Cape Cod Construction Company having made a special requisition for extra work done by the Cape Cod Construction Company under its contract for the construction of the Boston, Cape Cod and New York Canal, and it appearing upon examination and report by the Engineer of the Joint Board and otherwise that the work and materials have been

performed and furnished as extra work additional to that called for by said contract in the construction and equipment of the Canal, and that payment on account of the requisition is proper and reasonable, and it further appearing that the Canal Company has not yet installed and maintained a passenger and vehicular ferry at Bournedale as required by Order of the Joint Board nor availed itself of the benefit of the substitute method provided under chapter 184 of the General Acts of 1917, this Board hereby certifies in accordance with and as provided by the Act of 1899, chapter 448, as amended by the Act of 1900, chapter 476, that the work and materials covered by the foregoing requisition have been performed and furnished in the construction and equipment of the canal and are extra work in addition to that called for by said contract, and this Board further certifies and approves the issue at this time of additional stock and bonds to the amount of one thousand two hundred (1,200) shares of capital stock of the par value of one hundred (100) dollars each and one hundred twenty-one thousand (121,000) dollars in bonds as reasonably requisite therefor, reserving for issue hereafter fifty thousand (50,000) dollars in stock and bonds upon the completion and maintenance of a passenger and vehicular ferry at Bournedale, or in the alternative upon the Canal Company availing itself of the benefit of the substitute method provided under chapter 184 of the General Acts of 1917 and of the conditions of the Order thereunder of the Special Commission constituted thereby, adopted October 31, 1917 respecting the discontinuance of said ferry and the construction and operation of a street railway in its stead.

FREDERICK J. MACLEOD,
EVERETT E. STONE,
JOHN F. MEANEY,
JOSEPH B. EASTMAN,
CHARLES A. RUSSELL,
Public Service Commission.

JOHN N. COLE,
JESSE B. BAXTER,
WILLIAM S. McNARY,
Commission on Waterways and Public Lands.

Voted, That the Joint Board, deeming that under the statutes relating to the Boston, Cape Cod and New York Canal Company, and as advised by the Attorney-General, it has no jurisdiction or authority to require the construction of a lock, tidal gates, or other device for controlling the current in the canal to provide for its safe and suitable use by the public, and it appearing that the Canal Company and the Construction Company are in agreement that the provisions of the contract and specifications relating thereto need not be performed, and the Joint Board being without legal authority to compel performance of an order requiring the same, if made, makes no determination thereon.

Further voted, That the work of construction and equipment of the Boston, Cape Cod and New York Canal, so far as covered by the general contract and specifications between the Canal Company and the Construction Company, has been completed in substantial accordance with the contract and specifications for the purpose of full certification by the Joint Board of all the stock and bonds to be issued under the contract in payment for the performance thereof.

On July 22, 1918, by proclamation of President Wilson, the possession and control of the transportation system of the Boston, Cape Cod & New York Canal Company was taken over by the Federal government under authority of "An Act to provide for the operation of transportation systems while under Federal control, for the just compensations of their owners and for other purposes," approved March 21, 1918.

The Commission on Waterways and Public Lands has granted during the year various permits to the United States Railroad Administration, Cape Cod Canal Division, to dump dredged material, which are indicated on page 59 of this report.

The Joint Commission, under the provisions of chapter 184 of the General Acts of 1917, held a hearing Oct. 30, 1918, on a petition of the Plymouth and Sandwich Street Railway Company for an extension of time to Nov. 1, 1919, for the construction and operation of a street railway along the north side of and substantially parallel with the Cape Cod Canal, from a point at or near the bridge across said canal at Sagamore to a point at or near the highway bridge across said canal at Bourne Village. It was stated by the petitioner that by reason of financial and other unusual conditions, and as set forth in this petition, the company has been able to carry out only a small part of the work under the order of the Joint Commission dated Oct. 31, 1917. After hearing all parties desiring to be heard the following order was issued:—

The Commonwealth of Massachusetts

IN BOARD OF PUBLIC SERVICE COMMISSIONERS, COMMISSIONERS ON WATERWAYS AND PUBLIC LANDS, COUNTY COMMISSIONERS OF THE COUNTY OF BARNSTABLE, AND SELECTMEN OF THE TOWN OF BOURNE, SITTING AS A JOINT COMMISSION, OCTOBER 30, 1918.

By vote of this Joint Commission —

It is ordered, That the Plymouth and Sandwich Street Railway Company be and it is hereby allowed a further period from the first day of November 1918 for the construction of a street railway along the north side of, and substantially parallel with, the Cape Cod Canal, from a point at or near the bridge across said canal at or near the village of Sagamore, in the town of Bourne, to a point at or near the highway bridge across said canal at Bourne Village, under the provisions of Chapter 184 of the General Acts of 1917 and an Order of this Joint Commission made October 31, 1917, so that the time within which the said street railway shall be constructed and put in operation is hereby extended to the first day of November, 1919.

JOHN N. COLE,
Chairman.

FREDERICK J. MACLEOD,
JOSEPH B. EASTMAN,
EVERETT E. STONE,
Public Service Commission.

JESSE B. BAXTER,
WILLIAM S. McNARY,
Commission, on Waterways and Public Lands.

BENJAMIN F. BOURNE,
JOSHUA A. NICKERSON,
FRANK G. THACHER,
County Commissioners of the County of Barnstable.

GEORGE L. ATHERTON,
CHARLES H. PHINNEY,
Selectmen of the Town of Bourne.

LICENSES GRANTED DURING THE YEAR.

Nos.

150. Petition of the city of Boston, by its Board of Park and Recreation Commissioners, for license to build bulkheads, fill solid and dredge in Dorchester Bay at Tenean Beach, Boston. Granted Dec. 6, 1917.
151. Petition of the Edison Electric Illuminating Company of Boston for license to lay a cable in and under Charles River near Western Avenue bridge, Boston and Watertown. Granted Dec. 6, 1917.
152. Petition of the East Boston Dry Dock Company for license to rebuild and widen, on piles, its Pier No. 4 in Boston Harbor, East Boston. Granted Dec. 6, 1917.
153. Petition of George W. Perkins for license to build sea walls and a pile wharf, to fill solid and dredge in Rockport Harbor, Rockport. Granted Dec. 18, 1917.
154. Petition of the county commissioners of Norfolk County for approval of plans for construction of a new highway bridge and approaches thereto across Monaquot River, Braintree, as authorized by chapter 315 of the General Acts of 1917. Granted Dec. 18, 1917.
155. Petition of Annie W. McKennon for license to build a pile wharf in Provincetown Harbor, Provincetown. Granted Dec. 27, 1917.
156. Petition of S. Sklaroff & Sons for license to build sea walls and a pile wharf, and to fill solid in Provincetown Harbor, Provincetown. Granted Dec. 27, 1917.
157. Petition of Charles P. Notman for license to build a sea wall and fill solid in Gloucester Harbor, Gloucester. Granted Jan. 8, 1918.
158. Petition of the New England Structural Company for license to fill solid, build a pile platform, excavate a channel and maintain work already done in tidewater of Island End River, Everett. Granted Jan. 10, 1918.
159. Petition of the New York, New Haven & Hartford Railroad Company for a license to build a masonry retaining wall on the easterly side of Connecticut River, fill solid and lay additional tracks; also to extend the present three-span brick arch bridge over Mill River, Springfield. Granted Jan. 10, 1918.
160. Petition of the Cape Ann Tool Company for license to build a sea wall and fill solid in Pigeon Cove Harbor, Rockport. Granted Feb. 4, 1918.
161. Petition of the Boston & Maine Railroad, by J. H. Hustis, temporary receiver, for license to lay and maintain a pipe in Merrimack River in the vicinity of the Middlesex Station, Lowell. Granted Feb. 4, 1918.
162. Petition of the Bethlehem Shipbuilding Corporation, Ltd., successor to the Fore River Shipbuilding Corporation, for license to fill solid in Dorchester Bay and other localities at Squantum in the city of Quincy. Granted Feb. 11, 1918.

Nos.

163. Petition of Robert T. Refuse for license to build a concrete wall, and steps in connection therewith, in Dyer's Cove at Sconticut Neck, Fairhaven. Granted Feb. 15, 1918.
164. Petition of the New England Telephone and Telegraph Company of Massachusetts for license to lay four cables in and over Neponset River at the temporary Neponset bridge, so called, Boston and Quincy. Granted Feb. 25, 1918.
165. Petition of John C. Murphy for license to build a bulkhead and fill solid in Boston Harbor near the Reserved Channel at South Boston. Granted March 6, 1918.
166. Petition of Edward H. R. Green for license to build a pile pier in Buzzards Bay at Round Hills, Dartmouth. Granted March 6, 1918.
167. Petition of the Edison Electric Illuminating Company of Boston for license to lay two cables in Charles River near Western Avenue bridge, Boston and Watertown. Granted March 8, 1918.
168. Petition of the Edison Electric Illuminating Company of Boston for license to relocate and lay two cables in Charles River near Western Avenue bridge, Boston and Watertown. Granted March 25, 1918.
169. Petition of Charles S. Gleason for license to build a pile wharf and float stage on Broad Marsh River, Wareham. Granted April 5, 1918.
170. Petition of Ethel L. Drew for license to build a bulkhead, fill solid and to dredge in Acushnet River, Fairhaven. Granted April 8, 1918.
171. Petition of Harry K. Noyes for license to build plank bulkheads and jetties in Nantucket Sound, Dennis. Granted April 10, 1918.
172. Petition of the Acushnet Process Company for approval of plans for building a dam in Acushnet River from said company's lands in Acushnet, near the Slocum Street bridge, to land in New Bedford, as authorized by chapter 286 of the Special Acts of 1917. Granted April 10, 1918.
173. Petition of the Crowninshield Shipbuilding Company for license to build a marine railway and pile wharf and to dredge in Taunton River, Somerset. Granted April 23, 1918.
174. Petition of Seth K. Ames for license to build a sea wall and fill solid in Wonsons Cove, in Gloucester Harbor, Gloucester. Granted April 23, 1918.
175. Petition of the City Manufacturing Corporation for license to build a sea wall, fill solid and increase the height of said corporation's present wall on Acushnet River, New Bedford. Granted April 23, 1918.
176. Petition of the Boston & Maine Railroad, by J. H. Hustis, temporary receiver, for license to reconstruct a portion of its bridge, known as Drawbridge No. 5, on Charles River, Boston and Cambridge, and to drive additional piles at and near the draw in said bridge. Granted April 30, 1918.

Nos.

177. Petition of the Seaside Realty Company for license to build a stone breakwater in tidewater at Salisbury Beach, Salisbury. Granted May 3, 1918.
178. Petition of the Mexican Petroleum Corporation for license to build a pile wharf on Chelsea Creek, Chelsea. Granted May 3, 1918.
179. Petition of Arthur P. Brayton for license to construct a portion of a building and to build a pile wharf on Taunton River, Somerset. Granted May 10, 1918.
180. Petition of A. Frank Clark, trustee, for license to build a bulkhead and fill solid on Acushnet River, Fairhaven. Granted May 10, 1918.
181. Petition of George Francis for license to maintain a pile wharf as now built on Chelsea Creek, Chelsea. Granted May 10, 1918.
182. Petition of George Francis for license to build a pile wharf on Chelsea Creek, Chelsea. Granted May 10, 1918.
183. Petition of the Crowninshield Shipbuilding Company for license to build a marine railway and pile wharf and to dredge in Taunton River, Somerset. Granted May 17, 1918.
184. Petition of the Boston Development and Sanitary Company for license to build a temporary pile structure on Chelsea Creek, Boston. Granted May 24, 1918.
185. Petition of the Nantucket Shipbuilding Company for license to build a marine railway, a bulkhead, fill solid and to dredge in Nantucket Harbor, Nantucket. Granted May 24, 1918.
186. Petition of John Nagle for license to build structures and draw water from Black Pond, Brewster and Harwich. Granted May 24, 1918.
187. Petition of T. Stuart & Son Company for license to build a temporary pile wharf and to dredge in Town River, Quincy. Granted June 3, 1918.
188. Petition of the Acushnet Process Company for license to build a pile and timber bulkhead and fill solid in Acushnet River, Acushnet. Granted June 10, 1918.
189. Petition of Elmer E. Clapp and Bertram B. Conrad for license to build a wharf and float stage in Buzzards Bay at Robinwood Park, Wareham. Granted June 18, 1918.
190. Petition of S. Sklaroff & Sons for license to extend a wharf on piles in Provincetown Harbor, Provincetown. Granted June 20, 1918.
191. Petition of the Fall River Electric Light Company for license to build lines for the transmission of electricity over the tidewaters of Lees River, Swansea and Somerset. Granted June 28, 1918.
192. Petition of the Fall River Electric Light Company for license to build lines for the transmission of electricity over the tidewaters of Coles River, Swansea. Granted June 28, 1918.
193. Petition of the Fall River Electric Light Company for license to build lines for the transmission of electricity over the tidewaters of Warren River, Swansea. Granted June 28, 1918.

Nos.

194. Petition of the Raymond Concrete Pile Company for license to build a temporary wharf on the Reserved Channel, South Boston. Granted July 1, 1918.
195. Petition of the Metropolitan Park Commission for license to widen the temporary Neponset bridge and construct a temporary car trestle on Neponset River, Boston and Quincy. Granted July 1, 1918.
196. Petition of the Farm and Trades School for license to lay a submarine telephone cable in Boston Harbor from Squantum Head to Thompson's Island, Boston and Quincy. Granted July 1, 1918.
197. Petition of John H. Pike for license to locate and maintain floats and to connect the same with structures now built in tidewater of Saugus River, Saugus. Granted July 3, 1918.
198. Petition of the trustees of the National Dock Trust for license to build a sea wall and fill solid in a dock in Boston Harbor at East Boston. Granted July 5, 1918.
199. Petition of Frances C. Lillie for license to extend a wharf in Buzzards Bay at Woods Hole, Falmouth. Granted July 3, 1918.
200. Petition of the city of New Bedford for license to extend the Gifford Street sewer, to build a timber and rip-rap bulkhead, and to fill solid for the purposes of a wharf in Acushnet River, New Bedford. Granted Sept. 11, 1918.
201. Petition of the city of New Bedford for license to extend the Howland Street sewer, to build a timber and rip-rap bulkhead, and to fill solid for the purposes of a wharf in Acushnet River, New Bedford. Granted Sept. 11, 1918.
202. Petition of Edward H. R. Green for license to build a stone break-water in Buzzards Bay at Round Hill Point, Dartmouth. Granted July 17, 1918.
203. Petition of Morris Rudnick and Abraham I. Rudnick for license to build a garage and its foundation on Fort Point Channel, Boston. Granted July 24, 1918.
204. Petition of the city of Beverly for license to lay a pipe for sewage purposes under and across Bass River, Beverly. Granted July 25, 1918.
205. Petition of the Mexican Petroleum Corporation for license to build two pile wharves on Chelsea Creek, Chelsea. Granted July 31, 1918.
206. Petition of Benjamin Fox for license to build a wharf and float stage in Buzzards Bay at Peters Cove, Wareham. Granted July 31, 1918.
207. Petition of John F. Smith for license to widen a portion of his wharf in Provincetown Harbor, Provincetown. Granted July 31, 1918.
208. Petition of the New York, New Haven & Hartford Railroad Company for license to lay three cables in and over Neponset River at the drawway in its bridge across said river, Boston and Quincy. Granted Aug. 19, 1918.

Nos.

209. Petition of the Newburyport Gas and Electric Company for license to build lines for the transmission of electricity over the tidewaters of Parker River and Little River, Newbury. Granted Aug. 19, 1918.
210. Petition of the Newburyport Gas and Electric Company for license to construct a concrete intake well in Merrimack River, Newburyport. Granted Aug. 19, 1918.
211. Petition of Jackson R. Williams for license to widen and extend his wharf on piles in Provincetown Harbor, Provincetown. Granted Aug. 26, 1918.
212. Petition of the New England Telephone and Telegraph Company of Massachusetts for license to lay four cables in and over Neponset River at the temporary Neponset bridge, Boston and Quincy. Granted Aug. 26, 1918.
213. Petition of the Bay State Street Railway Company for license to build a pile platform and trestle on Weymouth Fore River at said company's power station, Quincy. Granted Aug. 26, 1918.
214. Petition of the Cape Cod Fish Products Company, Incorporated, for license to build a pile wharf in Provincetown Harbor, Provincetown. Granted Sept. 11, 1918.
215. Petition of the Newburyport Gas and Electric Company for license to build lines for the transmission of electricity over the tidewaters of Rowley River, Rowley and Ipswich. Granted Sept. 11, 1918.
216. Petition of the Gloucester Cold Storage and Warehouse Company for license to build a sea wall and pile wharf, to fill solid and to dredge in Harbor Cove, Gloucester. Granted Sept. 11, 1918.
217. Petition of the Parkhurst Fisheries Company for license to widen and extend its wharf on piles in Gloucester Harbor, Gloucester. Granted Sept. 11, 1918.
218. Petition of the Abertshaw Construction Company for license to build pile structures on Chelsea Creek, Chelsea. Granted Sept. 30, 1918.
219. Petition of Wallace B. Donham, receiver of the Bay State Street Railway Company, for license to build a pile and timber bulkhead and to fill solid on Town River, Quincy. Granted Oct. 7, 1918.
220. Petition of B. R. Pollock, Federal manager of the Boston & Maine Railroad, acting in behalf of the United States Railroad Administration, for license to rebuild railroad bridge across North River Canal, Salem. Granted Oct. 7, 1918.
221. Petition of the Boston Elevated Railway Company for license to dump snow and ice in tidewater. Granted Oct. 16, 1918.
222. Petition of the New York, New Haven & Hartford Railroad Company and the Old Colony Railroad Company for license to lay a submarine cable in Taunton River at the Somerset drawbridge, Fall River and Somerset. Granted Oct. 16, 1918.
223. Petition of the General Electric Company for license to build a pile trestle and a dike, to fill solid and to place rip-rap in Saugus River and a creek tributary thereto, Lynn. Granted Oct. 16, 1918.

Nos.

224. Petition of the city of Springfield and the town of West Springfield for license to build three piers in Connecticut River at the Old Toll bridge, Springfield and West Springfield. Granted Oct. 21, 1918.
225. Petition of the city of New Bedford for license to build a pile and rip-rap bulkhead and to fill solid on Acushnet River, New Bedford. Granted Oct. 21, 1918.
226. Petition of the New Bedford Storage Warehouse Company for license to build a pile and rip-rap bulkhead and to fill solid on Acushnet River, New Bedford. Granted Oct. 21, 1918.
227. Petition of Charlotte Benedict Compton for license to build a pile pier in Edgartown Harbor, Edgartown. Granted Oct. 21, 1918.
228. Petition of the Old Colony Railroad Company, the New York, New Haven & Hartford Railroad Company, lessee, for license to repair its bridge across Wareham River, Wareham. Granted Nov. 6, 1918.
229. Petition of Charles F. Tirrell and Jesse Tirrell, trustees of the estate of Jesse Tirrell, to maintain a pile structure built on the Reserved Channel at South Boston under license No. 194, granted by the Commission to the Raymond Concrete Pile Company July 1, 1918. Granted Nov. 14, 1918.
230. Petition of the Salem Electric Lighting Company for license to rebuild a portion of its sea wall on South River, Salem. Granted Nov. 18, 1918.
231. Petition of B. R. Pollock, Federal manager of the Boston & Maine Railroad, acting in behalf of the United States Railroad Administration, for license to drive additional piles in the Boston & Maine Railroad bridge, Eastern Division, across Mystic River, Somerville. Granted Nov. 27, 1918.
232. Petition of the city of Boston, by its commissioner of public works, to dump snow and ice into tidewaters. Granted Nov. 27, 1918.

MISCELLANEOUS PERMITS GRANTED DURING THE YEAR.

- CHARLES L. CAMPBELL, to construct a timber platform on the inner side of the breakwater on the easterly side of the Fish Pier, South Boston. Granted Dec. 7, 1917.
- FRANK F. MARANO, to use and occupy the Mansion House, so called, Braintree. Granted Dec. 11, 1917.
- BUTLER MILL, extension of time for work under permit granted Oct. 19, 1917, for dredging in New Bedford Harbor, New Bedford. Granted Dec. 18, 1917.
- BETHLEHEM SHIPBUILDING CORPORATION, LIMITED, to dredge in Neponset River on the southerly side of the mouth of Tenean Creek, Boston. Granted Dec. 20, 1917.
- MEXICAN PETROLEUM CORPORATION, extension of time for work under permit granted March 9, 1917, for dredging in Chelsea Creek. Granted Jan. 23, 1918.

ISAAC BLAIR & Co., INC., to dump snow into tidewater from Dover Street bridge, Boston. Granted Jan. 30, 1918.

NEW YORK, NEW HAVEN & HARTFORD RAILROAD COMPANY, to redredge the berth on the easterly side of Pier No. 4, South Boston. Granted Feb. 4, 1918.

BAY STATE DREDGING AND CONTRACTING COMPANY, to dredge material from Boston Harbor on the southwesterly side of Lovells Island. Granted Feb. 25, 1918.

COLONIAL STEEL COMPANY, to deposit material on the Commonwealth Flats at South Boston. Granted March 6, 1918.

BETTS BROTHERS & Co., to deposit material at the East Boston receiving station. Granted March 8, 1918.

FRANK J. HANNON, to occupy a portion of the Commonwealth's land at South Boston. Granted March 13, 1918.

GALLAGHER & MANNIX, to deposit material at and near the dry dock at South Boston. Granted March 15, 1918.

FREDERICK D. FISK, JOSEPH SARGENT and DANIEL R. SORTWELL, TRUSTEES, to dredge material from Charles River, Cambridge. Granted March 20, 1918.

BOSTON ELEVATED RAILWAY COMPANY, to use the trolley freight shed on the Commonwealth's land at South Boston. Granted March 20, 1918.

FRANK J. HANNON, to occupy a portion of the Commonwealth's land at South Boston. Granted April 5, 1918.

QUINCY ELECTRIC LIGHT AND POWER COMPANY, to dredge a berth in front of its premises on Town River, Quincy. Granted April 10, 1918.

SELECTMEN OF THE TOWN OF HULL, to take gravel from a point on the beach lying between the new supply pier of the Nantasket Beach Steamboat Company and the old pier known as the Hull Yacht Club Pier, in Hull. Granted April 10, 1918.

EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON, to dredge an area adjoining the wharf at its premises on the northerly side of South Boston. Granted April 15, 1918.

UNITED STATES OF AMERICA, to erect on property at South Boston which they are authorized to use for the duration of the war certain buildings, sewers, drains, water pipes and tracks. Granted April 22, 1918.

BOSTON DREDGING COMPANY, to redredge the berth alongside its wharf at East Boston. Granted April 23, 1918.

UNITED STATES OF AMERICA, to lay and maintain pipes and conduits in land of the Commonwealth at South Boston in connection with construction and operation on property of the United States purchased from the Commonwealth at South Boston, lying between the Reserved Channel and Dry Dock Avenue. Granted April 23, 1918.

UNITED STATES OF AMERICA, to occupy for railroad yards and open storage during the war certain portions of the Commonwealth Flats at South Boston. Granted April 23, 1918.

M. J. MAHONEY, to deposit ballast at Jeffries Point, East Boston. Granted April 30, 1918.

- JOHN TAYLOR, to use and occupy the Mansion House, so called, on land of the Commonwealth, Braintree. Granted April 30, 1918.
- THE AMERICAN PRINT WORKS, to dredge an area between its wharf and the channel dredged by the United States government in Fall River Harbor. Granted May 3, 1918.
- UNITED STATES OF AMERICA, approval of the location of two 16-inch water mains on the Commonwealth Flats at South Boston. Granted May 7, 1918.
- U. S. INDUSTRIAL ALCOHOL COMPANY, to dredge at its wharf on Commercial Street near the mouth of Charles River. Granted May 10, 1918.
- D. J. CUTTER & Co., to dredge a berth at its wharf on Tenean Creek, Dorchester. Granted May 22, 1918.
- UNITED STATES OF AMERICA, approval of location of water mains, pipe sewers and branch pipes in certain designated areas on the Commonwealth Flats at South Boston. Granted May 22, 1918.
- UNITED STATES OF AMERICA, to construct a pipe sewer and two buildings on designated portions of the Commonwealth Flats at South Boston. Granted May 29, 1918.
- UNITED STATES OF AMERICA, to construct and maintain a series of surface water drains on the Commonwealth Flats at South Boston. Granted June 10, 1918.
- CITY OF BOSTON, to dredge a berth in the south channel of Mystic River at the Mystic Playground, adjoining Chelsea Street bridge, Boston. Granted June 10, 1918.
- RICHARD T. GREEN COMPANY, to dredge at its premises on Chelsea Creek, Chelsea. Granted June 18, 1918.
- CITY OF BOSTON, by its public works department, to dredge a channel at Calf Pasture Pumping Station. Granted June 21, 1918.
- UNITED STATES OF AMERICA, to construct water main on land of the Commonwealth at South Boston. Granted June 21, 1918.
- UNITED STATES OF AMERICA, to construct and maintain a temporary wooden building on the Commonwealth Flats at South Boston. Granted June 21, 1918.
- TRUSTEES OF THE MAYFLOWER INN, INCORPORATED, to remove sand and gravel from the beach near Manomet Point, Plymouth. Granted June 28, 1918.
- TOWN OF IPSWICH, by its board of selectmen, to deposit clam shells in tidewater adjacent to the town wharf on Ipswich River, Ipswich. Granted June 28, 1918.
- BOSTON CONSOLIDATED GAS COMPANY, to dredge the berth at its wharf at the Calf Pasture Station on Dorchester Bay. Granted July 1, 1918.
- JOHN H. DRISCOLL, Jr., to use and occupy Berry Island in Lake Winthrop, Holliston. Granted July 17, 1918.
- NEW YORK STATE DREDGING CORPORATION, to dredge two areas in Boston Harbor, on flats owned by the Estate of Charles H. Souther. Granted July 24, 1918.

UNITED STATES OF AMERICA, to dredge a certain area at South Boston. Granted July 29, 1918.

LOCKE COAL COMPANY, to dredge dock at its wharf in Malden. Granted Aug. 9, 1918.

THE BOSTON, CAPE COD & NEW YORK CANAL COMPANY, to dump 50,000 cubic yards of dredged material in Cape Cod Bay. Granted Aug. 19, 1918.

UNITED STATES OF AMERICA, approval of extensions of water pipes in Dry Dock Avenue, South Boston. Granted Aug. 19, 1918.

THE EDISON ELECTRIC ILLUMINATING COMPANY OF BOSTON, to erect, maintain and use for support of electric wires four poles along curb line of southerly side of Cypher Street, between B and C streets, on Commonwealth Flats at South Boston. Granted Aug. 19, 1918.

THE UNITED STATES RAILROAD ADMINISTRATION, CAPE COD CANAL DIVISION, to dump approximately 50,000 cubic yards of material dredged from Cape Cod Canal in Cape Cod Bay. Granted Aug. 26, 1918. (In substitution for permit of Aug. 19, 1918, to Boston, Cape Cod & New York Canal Company.)

UNITED STATES OF AMERICA, to lay and maintain an electric conduit in Dry Dock Avenue, South Boston. Granted Sept. 30, 1918.

NEW YORK, NEW HAVEN & HARTFORD RAILROAD COMPANY, to dredge in the dock at its pier No. 1, South Boston. Granted Sept. 30, 1918.

EDWARD T. FENNO, to remove not exceeding 200 loads of gravel from his beach in Falmouth. Granted Sept. 30, 1918.

THE UNITED STATES RAILROAD ADMINISTRATION, CAPE COD CANAL DIVISION, to dump approximately 15,000 cubic yards of dredged material in an area in Buzzards Bay. Granted Oct. 21, 1918.

D. DOHERTY COMPANY, to dredge in the dock on the easterly side of its wharf at Freeport Street, Dorchester. Granted Oct. 21, 1918.

EDWARD H. R. GREEN, to dredge at and near Old South Wharf, in Apponaugansett Harbor, Dartmouth. Granted Oct. 30, 1918.

EDWARD H. R. GREEN, to dredge in the dock southerly of and adjoining Merrills Wharf, New Bedford. Granted Oct. 30, 1918.

THE NEW ENGLAND FUEL AND TRANSPORTATION COMPANY, to dredge an area in front of its coal pockets on Island End River, Everett. Granted Oct. 30, 1918.

THE UNITED STATES RAILROAD ADMINISTRATION, CAPE COD CANAL DIVISION, to dump material dredged from the Boston, Cape Cod & New York Canal, in Cedar Pond, Bourne. Granted Oct. 30, 1918.

BOSTON CONSOLIDATED GAS COMPANY, to lay a 12-inch gas main in Fargo Street on the Commonwealth Flats at South Boston; also an 8-inch gas main in Dry Dock Avenue. Granted Nov. 7, 1918.

BOSTON TERMINAL REFRIGERATING COMPANY, to construct two cast-iron water pipes from its plant in and under Commonwealth Pier No. 1, East Boston. Granted Nov. 18, 1918.

THE WESTERN UNION TELEGRAPH COMPANY OF NEW YORK, to construct, maintain and use for installing electric telegraph wires a conduit consisting of two creosoted wood ducts from Summer Street to Commonwealth Pier No. 5, along the line of the viaduct between said street and pier, South Boston. Granted Nov. 18, 1918.

BOSTON & MAINE RAILROAD, to dredge shoals in docks opposite freight houses Nos. 46 and 47 at Mystic Wharf, Boston. Granted Nov. 20, 1918.

THOMAS FITZGIBBON, acting for and in behalf of the Gloucester Cold Storage and Warehouse Company, to dredge in the dock adjoining the wharf of said company in Gloucester Harbor, Gloucester. Granted Nov. 27, 1918.

THOMAS FITZGIBBON, acting for and in behalf of Sylvanus Smith, to dredge in the dock adjoining the wharf of said Smith in Gloucester Harbor, Gloucester. Granted Nov. 27, 1918.

THOMAS FITZGIBBON, acting for and in behalf of the Gloucester Coal Company, to dredge in the dock adjoining the wharf of said company in Gloucester Harbor, Gloucester. Granted Nov. 27, 1918.

FISH WEIR PERMITS APPROVED DURING THE YEAR.

MARTHAS VINEYARD COLD STORAGE AND ICE COMPANY. Permit issued by the selectmen of Gosnold Dec. 1, 1917, to construct and maintain a fish weir in Buzzards Bay, off the westerly shore of Naushon Island, Gosnold. Approved Dec. 11, 1917.

BAY STATE FREEZER, INCORPORATED. Permit issued by the selectmen of Yarmouth Dec. 19, 1917, to set and maintain a fish weir in the tide-waters of Yarmouth. Approved Jan. 3, 1918.

WILLIAM R. CHASE. Permit issued by the selectmen of Harwich Dec. 3, 1917, to set and maintain a fish weir in South Bay, Harwich. Approved Jan. 3, 1918.

EDMUND D. KENDRICK and EDMUND S. KENDRICK. Permit issued by the selectmen of Chatham Jan. 7, 1918, to construct and maintain a fish weir in Pleasant Bay, Chatham. Approved Jan. 23, 1918.

JAMES C. KELLEY. Permit issued by the selectmen of Dennis Jan. 16, 1918, to construct and maintain a fish weir in Nantucket Sound, Dennis. Approved Jan. 23, 1918.

CONSOLIDATED WEIR COMPANY OF MASSACHUSETTS. Permit issued by the selectmen of Chatham Jan. 15, 1918, to construct and maintain a fish weir in Chatham South Bay, beginning at a point on the west side of Monomoy Beach 1,000 yards north of the southern location of Benjamin L. Jones, and extending in a westerly direction 800 yards into the bay. Approved Jan. 25, 1918.

CONSOLIDATED WEIR COMPANY OF MASSACHUSETTS. Permit issued by the selectmen of Chatham Jan. 15, 1918, to construct and maintain a fish weir in Chatham South Bay, beginning at a point on the west side

of Monomoy Beach 1,200 yards north of the southern location of E. Chester Eldredge, formerly known as Reed & Loveland, and extending in a westerly direction 800 yards into the bay. Approved Jan. 25, 1918.

GEORGE McLANE. Permit issued by the selectmen of Fairhaven Feb. 4, 1918, to construct and maintain a fish weir in the tidewaters of Fairhaven. Approved Feb. 11, 1918.

ELMER F. MAYO. Permit issued by the selectmen of Chatham Feb. 6, 1918, to construct and maintain a fish weir on the outside of Monomoy Beach, Chatham. Approved Feb. 11, 1918.

EVERETT A. POOLE and DONALD R. CAMPBELL. Permit issued by the selectmen of Chilmark Jan. 28, 1918, to set and maintain a floating fish trap opposite the point near the public landing at Squibnocket Beach, Chilmark. Approved Feb. 11, 1918.

CHARLES D. COWAN. Permit issued by the selectmen of Fairhaven Feb. 4, 1918, to construct and maintain a fish weir in the tidewaters of Fairhaven. Approved Feb. 11, 1918.

BENJAMIN F. RICH. Permit issued by the selectmen of Chatham Feb. 6, 1918, to construct and maintain a fish weir off Kidders Point, Chatham. Approved Feb. 20, 1918.

WILLIAM T. DUNN. Permit issued by the selectmen of Dartmouth, in effect March, 1918, to construct and maintain a fish trap off the westerly shore of Clark's Cove, about one-eighth of a mile north of Mosher's Point, Dartmouth. Approved Feb. 20, 1918.

CHARLES W. VANDERHOOP COMPANY. Permit issued by the selectmen of Gay Head Jan. 10, 1918, to construct and maintain a fish weir in Vineyard Sound, Gay Head. Approved Feb. 20, 1918.

BENJAMIN R. BAKER. Permit issued by the selectmen of Chatham Feb. 18, 1918, to construct and maintain a fish weir in Pleasant Bay, Chatham. Approved Feb. 27, 1918.

MARTHAS VINEYARD COLD-STORAGE AND ICE COMPANY. Permit issued by the selectmen of Tisbury Feb. 18, 1918, to construct and maintain a fish trap in Vineyard Haven Harbor, Tisbury. Approved March 6, 1918.

CHARLES E. F. BENSON. Permit issued by the selectmen of Tisbury Nov. 26, 1917, to set and maintain a fish trap near the head of Lagoon Pond, Tisbury. Approved March 6, 1918.

THOMAS HIGGINS. Permit issued by the selectmen of Brewster Feb. 22, 1918, to construct and maintain two fish weirs in Cape Cod Bay, Brewster. Approved March 8, 1918.

EDWIN B. ELLIS. Permit issued by the selectmen of Brewster Feb. 22, 1918, to construct and maintain two fish weirs in Cape Cod Bay, Brewster. Approved March 8, 1918.

ARTHUR W. KENDRICK. Permit issued by the selectmen of Chatham March 4, 1918, to construct and maintain a fish weir in South Bay, Chatham. Approved March 8, 1918.

- DOMINGO BROWN. Permit issued by the selectmen of Fairhaven Feb. 18, 1918, to construct and maintain a fish weir in Buzzards Bay, Fairhaven. Approved March 27, 1918.
- JOHN BROWN. Permit issued by the selectmen of Fairhaven March 11, 1918, to construct and maintain a fish weir in Nasketucket Bay, an arm of Buzzards Bay, Fairhaven. Approved March 27, 1918.
- ABRAM OSBORN. Permit issued by the selectmen of Edgartown March 21, 1918, to construct and maintain a fish weir in Edgartown Harbor on the north shore of Chappaquiddick Island at Cape Pogue. Approved March 27, 1918.
- DANIEL C. LOOK and LAWRENCE PERCIVAL. Permit issued by the selectmen of Chilmark March 23, 1918, to construct and maintain a fish weir in Vineyard Sound, Chilmark. Approved March 29, 1918.
- LINUS S. ELDRIDGE. Permit issued by the selectmen of Mattapoisett Feb. 18, 1918, to construct and maintain a fish trap in Buzzards Bay southwesterly from Strawberry Point, Mattapoisett. Approved March 29, 1918.
- OBED S. DAGGETT. Renewal under date of March 23, 1918, by the selectmen of Gosnold of permit issued March 31, 1917, to construct and maintain a fish weir extending from shore of Naushon Island at a point called "Black Woods," Gosnold. Approved April 23, 1918.
- OBED S. DAGGETT. Renewal under date of March 23, 1918, by the selectmen of Gosnold, of permit issued Mar. 24, 1917, to construct a fish trap in Vineyard Sound from a point on the shore of Naushon Island known as the "French Watering Place," Gosnold. Approved April 23, 1918.
- FRED T. LANE. Permit issued by the municipal council of Gloucester April 10, 1918, to maintain on the westerly side of Folly Cove, Gloucester, a floating fish trap. Approved April 23, 1918.
- ALONZO F. CAHOON. Permit issued by the selectmen of Chatham April 15, 1918, to construct and maintain a fish weir in South Bay, Chatham, on the southwesterly side of the Middle Ground. Approved April 23, 1918.
- ALBERT C. SMITH. Permit issued by the selectmen of Barnstable April 13, 1918, to erect and maintain a fish weir in Barnstable Harbor, Barnstable. Approved April 23, 1918.
- DAVID L. KELLEY. Permit issued by the selectmen of Fairhaven April 22, 1918, to construct and maintain a fish weir in Buzzards Bay, Fairhaven, beginning at a point of land on the easterly side of the line between the town of Fairhaven and the city of New Bedford. Approved May 1, 1918.
- PURITAN CANNING COMPANY and D. D. SAWYER. Permit issued by the selectmen of Plymouth Feb. 4, 1918, to set and maintain a fish trap in Plymouth Bay, Plymouth, about midway between Duxbury Pier Light and the easterly edge of Duxbury Channel. Approved May 1, 1918.
- H. NELSON WILBUR. Permit issued by the selectmen of Fairhaven April 15, 1918, to construct and maintain a fish weir in tidewaters of Fair-

haven, beginning at a point on the east side of Sconticut Neck. Approved May 1, 1918.

HOWARD HODGKINS and FREDERICK T. LANE. Permit issued by the selectmen of Rockport April 18, 1918, to construct two fish traps in tide-waters of Rockport, one on the easterly side of Knowlton's Point, the other on the northwesterly side of Halibut Point. Approved May 1, 1918.

JOHN J. VEEDER. Permit issued by the selectmen of Gosnold April 20, 1918, to construct and maintain a fish trap on the shore of Naushon Island, Gosnold, at a point southeast of Weepecket Island in Buzzards Bay. Approved May 1, 1918.

ANSEL E. TAYLOR. Permit issued by the selectmen of Yarmouth May 8, 1918, to set and maintain a fish weir in Nantucket Sound, Yarmouth. Approved May 15, 1918.

JOSHUA CRANE. Permit issued by the selectmen of Chilmark May 1, 1918, to construct and maintain a fish weir in the tidewaters of Chilmark at No Mans Land. Approved May 17, 1918.

ENSIGN C. JERAULD. Permit issued by the selectmen of Barnstable May 1, 1918, to construct and maintain three fish weirs in Cape Cod Bay, Barnstable. Approved May 17, 1918.

CHARLES C. ELDREDGE, Jr., and EDWARD F. TREVOY. Permit issued by the selectmen of Nantucket April 10, 1918, to construct and maintain a fish weir in the tidewaters of Nantucket on the north shore of Muskegat Island. Approved May 22, 1918.

MAURICE R. PHINNEY. Permit issued by the selectmen of Barnstable May 15, 1918, to construct and maintain a fish weir in the tidewaters of Barnstable. Approved May 24, 1918.

MANUEL S. DEBETTENCOURT. Permit issued by the selectmen of Oak Bluffs Dec. 28, 1917, to construct and maintain a fish weir in Nantucket Sound, Oak Bluffs. Approved May 24, 1918.

YARMOUTH FISHERIES COMPANY. Permit issued by the selectmen of Yarmouth May 27, 1918, to set and maintain a fish weir in Nantucket Sound, Yarmouth. Approved May 29, 1918.

JOHN W. DALTON. Permit issued by the selectmen of Sandwich March 9, 1918, to set and maintain fish weirs in Cape Cod Bay, Sandwich. Approved June 26, 1918.

CANAL FISH AND FREEZING COMPANY. Permit issued by the selectmen of Sandwich June 8, 1918, to construct and operate a fish weir or weirs in Cape Cod Bay. Approved July 3, 1918.

CANAL FISH AND FREEZING COMPANY. Permit issued by the selectmen of Bourne June 19, 1918, to construct and operate a fish weir or weirs in Cape Cod Bay. Approved July 3, 1918.

CANAL FISH AND FREEZING COMPANY. Permit issued by the selectmen of Sandwich March 9, 1918, to construct and operate a fish weir or weirs in Cape Cod Bay. Approved July 3, 1918.

- EDWARD ORR. Permit issued by the selectmen of Brewster July 12, 1918, to construct and maintain a fish weir in tidewaters of Brewster about north northwest from the mouth of Namskaket Creek. Approved July 29, 1918.
- AUGUST W. BAKER. Permit issued by the selectmen of Chatham Aug. 5, 1918, to set and maintain an eel fyke in Frost Fish Creek, Chatham. Approved Aug. 14, 1918.
- WILLIAM N. ELDREDGE. Permit issued by the selectmen of Harwich July 1, 1918, to set and maintain fish weirs in Nantucket Sound, Harwich. Approved Aug. 14, 1918.
- CHARLES W. SNOW. Permit issued by the selectmen of Truro June 1, 1918, to construct and maintain a fish weir in tidewater, Truro. Approved Aug. 14, 1918.
- DAVID E. CURRAN. Permit issued by the selectmen of Wellfleet July 27, 1918, to erect and maintain two eel fykes below Herring River dike, Wellfleet. Approved Aug. 14, 1918.
- LEONARD B. DILL. Permit issued by the selectmen of Wellfleet July 27, 1918, to erect and maintain an eel fyke in Fresh Brook, Wellfleet. Approved Aug. 14, 1918.
- RAYMOND S. HIGGINS. Permit issued by the selectmen of Wellfleet July 27, 1918, to erect and maintain one eel fyke in Fresh Brook, Wellfleet. Approved Aug. 14, 1918.
- FRANK A. WILLIAMS. Permit issued by the selectmen of Wellfleet July 27, 1918, to erect and maintain two eel fykes below Herring River dike, Wellfleet. Approved Aug. 14, 1918.
- HARRY E. HUNT. Permit issued by the selectmen of Duxbury Aug. 15, 1918, to operate a fish trap in Duxbury Bay on the south side of Captains Flat, Duxbury. Approved Aug. 19, 1918.
- ORICK D. YOUNG. Permit issued by the selectmen of Chatham Aug. 19, 1918, to set and maintain a fyke in Henry Harding Creek on the north side of Oyster Pond River, Chatham. Approved Aug. 26, 1918.
- FREDERICK W. BAKER. Permit issued by the selectmen of Chatham Aug. 16, 1918, to construct and maintain a fish weir in Pleasant Bay, Chatham. Approved Aug. 26, 1918.
- EDWIN P. COOK. Permit issued by the selectmen of Wellfleet July 27, 1918, to set and maintain one eel fyke in Duck Creek, Wellfleet. Approved Sept. 4, 1918.
- SVEN HANSON. Permit issued by the municipal council of Gloucester Aug. 28, 1918, to maintain a fish trap on the west side of the Construction Company's wharf in Folly Cove, Gloucester. Approved Sept. 11, 1918.
- OBADIAH W. HORTON. Permit issued by the selectmen of Wellfleet Aug. 24, 1918, to erect and maintain two eel fykes in Silver Springs Creek, Wellfleet. Approved Sept. 11, 1918.
- EUGENE B. ELLIS. Permit issued by the selectmen of Brewster Sept. 10, 1918, to construct two fish traps in Mill Creek, one about 1,500 feet and

the other about 2,000 feet from the mouth of said creek, Brewster. Approved Sept. 30, 1918.

AZARIAH A. CAHOON. Permit issued by the selectmen of Brewster Sept. 10, 1918, to construct five fish traps, four of them to be about 400 feet from the mouth of Quivett Creek and one at the mouth of Mill Creek, Brewster. Approved Sept. 30, 1918.

EDWIN B. ELLIS. Permit issued by the selectmen of Brewster Sept. 10, 1918, to construct two fish traps in Mill Creek, one about 2,200 feet and the other about 1,700 feet from the mouth of said creek, Brewster. Approved Sept. 30, 1918.

MAURICE N. LEE. Permit issued by the selectmen of Brewster Sept. 12, 1918, to construct two fish traps in Namskaket Creek, about one-third of a mile from the mouth of the same, Brewster. Approved Sept. 30, 1918.

MAURICE E. MAKER. Permit issued by the selectmen of Wellfleet Sept. 21, 1918, to erect and maintain one eel fyke in Duck Creek, Wellfleet. Approved Sept. 30, 1918.

RALPH E. COOK. Permit issued by the selectmen of Wellfleet Sept. 21, 1918, to erect and maintain one eel fyke in Duck Creek, Wellfleet. Approved Sept. 30, 1918.

SHIRLEY E. NICKERSON. Permit issued by the selectmen of Nantucket June 12, 1918, to construct and maintain a fish trap on the south side of Nantucket. Approved Oct. 7, 1918.

GEORGE N. BRIGGS. Permit issued by the selectmen of Dartmouth Sept. 21, 1918, to construct and maintain a fyke in Paskamansett River, Dartmouth. Approved Oct. 7, 1918.

AARON KELLEY. Permit issued by the selectmen of Dennis Sept. 18, 1918, to construct and maintain a fish weir in Nantucket Sound, Dennis. Approved Oct. 7, 1918.

JEREMIAH F. RICH. Permit issued by the selectmen of Wellfleet Sept. 28, 1918, to erect and maintain one eel fyke in Black Fish Creek, Wellfleet. Approved Oct. 7, 1918.

NATHANIEL H. WIXON. Permit issued by the selectmen of Dennis Aug. 27, 1918, to construct and maintain a fish weir in Nantucket Sound, Dennis. Approved Oct. 9, 1918.

EDGAR F. WIXON. Permit issued by the selectmen of Dennis Aug. 27, 1918, to construct and maintain a fish weir in Nantucket Sound, Dennis. Approved Oct. 9, 1918.

CHARLES B. LONG. Permit issued by the selectmen of Dennis Sept. 13, 1918, to erect and maintain a fish weir in Nantucket Sound, Dennis. Approved Oct. 9, 1918.

MANUEL FISHER. Permit issued by the selectmen of Truro Aug. 17, 1918, to construct and maintain one eel fyke in a tidal arm of Pamet River, Truro. Approved Oct. 9, 1918.

WILLIAM M. KENDRICK. Permit issued by the selectmen of Chatham Oct. 7, 1918, to set and maintain a fyke in a creek in Chatham. Approved Oct. 16, 1918.

WILLIAM M. STONE. Permit issued by the selectmen of Dennis Oct. 22, 1918, to construct a fish weir in Barnstable Bay, opposite Nobscusset Point, Dennis. Approved Oct. 28, 1918.

JAMES F. NOYES. Permit issued by the selectmen of Manchester Nov. 19, 1918, to maintain a fish weir in tidewater off the northwesterly side of Ram Island, Manchester. Approved Nov. 27, 1918.

The foregoing report is respectfully submitted.

JOHN N. COLE, *Chairman,*
JESSE B. BAXTER,
WILLIAM S. McNARY,
Commissioners.

APPENDIX.

STATEMENT OF FINANCIAL CLERK, PORT FUNDS, DEC. 1, 1918.

INCOME OF HARBOR COMPENSATION FUND.

Balance of income Nov. 30, 1917,	.	.	.	.	.	.	\$17,801 97
Accrued Dec. 1, 1917, to Nov. 30, 1918, .	.	.	.	.	.	.	17,733 76
Amount in income of Harbor Compensation Fund Nov. 30, 1918,	.	.	.	.	.	.	\$35,535 73

HARBOR COMPENSATION FUND.

Amount in fund Nov. 30, 1917,	\$372,112 13
Receipts Dec. 1, 1917, to Nov. 30, 1918,	20,644 08
Amount in fund Nov. 30, 1918,	<u>\$392,756 21</u>
Appropriation for dredging Boston Harbor (Chelsea Creek) (chapter 348, Special Acts of 1917),	\$100,000 00

PORT OF BOSTON FUND.

Chapter 663, Acts of 1912.

	<i>Compendium</i>
Balance Nov. 30, 1917,	\$18,885 13
Appropriation for Commonwealth Flats development (chapter 351, Special Acts of 1917),	100,000 00
Receipts Dec. 1, 1917, to Nov. 30, 1918,	\$18,885 13 1,622,935 00
	\$1,641,820 13

PORT OF BOSTON FUND — *Concluded.*

Appropriation (chapter 106, Special Acts of 1918), personal services,	\$72,500 00	
Expenditures,	66,059 63	\$66,059 63
<hr/>		
Appropriation (chapter 106, Special Acts of 1918), office and incidental expenses,	\$7,500 00	
Expenditures,	7,325 88	7,325 88
<hr/>		
Appropriation (chapter 106, Special Acts of 1918), travelling expenses,	\$1,200 00	
Expenditures,	1,150 93	1,150 93
<hr/>		
Appropriation (chapter 106, Special Acts of 1918), publicity,	\$2,500 00	
Expenditures,	2,114 02	2,114 02
<hr/>		
Appropriation (chapter 106, Special Acts of 1918), operation and maintenance of Commonwealth Pier No. 5,	\$55,000 00	
Expenditures,	35,961 81	35,961 81
<hr/>		
Appropriation (chapter 106, Special Acts of 1918), repairing damages,	\$9,500 00	
Expenditures,	7,077 01	7,077 01
<hr/>		
Appropriation (chapter 106, Special Acts of 1918), triangulation points and stations,	\$1,000 00	
Expenditures,	996 84	996 84
<hr/>		
Appropriation (chapter 106, Special Acts of 1918), maintenance of Commonwealth's property,	\$35,000 00	
Expenditures,	25,486 43	25,486 43
<hr/>		
Total expenditures,		\$146,172 55
<hr/>		
Balance Nov. 30, 1918,		\$1,495,647 58

BOSTON HARBOR DREDGING.

Appropriation (chapter 348, Special Acts of 1917) from Harbor Compensation Fund, \$100,000 00

Expenditures.

	To Nov. 30, 1917.	1918.	Total.
Dredging in Chelsea Creek,	\$18,126 26	\$11,526 93	\$29,653 19
Engineering,	717 82	668 09	1,385 91
Dredging opposite Simpson's Patent Dry Dock,	—	—	—
Engineering,	—	83 39	83 39
	<hr/>	<hr/>	<hr/>
	\$18,844 08	\$12,278 41	\$31,122 49
Unexpended balance Nov. 30, 1918,			<hr/>
			\$68,877 51

COMMONWEALTH FLATS DEVELOPMENT.

Appropriation (chapter 351, Special Acts of 1917) from Port of Boston Fund (receipts from sales of land), \$100,000 00

Expenditures, —

DEVELOPMENT OF THE PORT OF BOSTON LOAN FUND.

Bonds authorized by chapter 748, Acts of 1911, \$9,000,000 00

Bonds sold in 1913, \$3,000,000 00

Bonds sold in 1914, 3,000,000 00

Bonds sold in 1915, 1,000,000 00

Bonds sold in 1917, 1,000,000 00

Bonds sold in 1918, 1,000,000 00

DEVELOPMENT OF THE PORT OF BOSTON LOAN FUND — *Continued.*

<i>Expenditures.</i>			
	HAYWARD'S CREEK.	To Nov. 30, 1917.	1918.
			Total.
Engineering,	.	\$1,522 30	\$626 82
Taking,	.	16,234 09	75,459 82
			91,693 91
		\$17,756 39	\$76,086 64
			\$93,843 03
COMMERCIAL POINT, DORCHESTER BAY.			
Appropriation from Development of the Port of Boston Loan Fund (chapter 602, Acts of 1914), \$58,000.			
Contract work: —			
Commercial Point, dredging,	.	\$49,903 56	—
Freeport Street, dredging,	.	449 65	—
Engineering,	.	2,859 89	—
		\$53,213 10	\$53,213 10
DRY DOCK.			
Contract work: —			
Bulkhead,	.	\$178,014 06	\$178,014 06
Dredging and filling,	.	278,608 36	278,608 36
Dredging Reserved Channel,	.	31,461 08	31,461 08
Borings,	.	2,442 90	2,442 90
Construction,	.	483,614 49	\$900,279 98
Engineering,	.	107,600 68	59,325 64
			1,383,894 47
			166,926 32
		\$1,081,741 57	\$959,605 62
			\$2,041,347 19

EAST BOSTON.

Contract work:—

Borings, . . . . .	.	.	.	.	.	\$3,320 75	—	\$3,320 75
Dredging opposite Pier No. 1, . . . . .	.	.	.	.	.	62,241 96	—	62,241 96
Jeffries Point ranges, . . . . .	.	.	.	.	.	213 58	—	213 58
Takings, . . . . .	.	.	.	.	.	1,354,877 21	—	1,354,877 21
Reclamation of flats, . . . . .	.	.	.	.	.	520,731 77	—	520,731 77
Jeffries Point bulkhead, . . . . .	.	.	.	.	.	75,488 32	—	75,488 32
Engineering, . . . . .	.	.	.	.	.	45,299 04	\$1,524 47	46,823 51
						\$2,062,172 63	\$1,524 47	\$2,063,697 10

SOUTH BOSTON.

Contract work:—

Commonwealth Pier No. 5, . . . . .	.	.	.	.	.	\$2,846,271 03	—	\$2,846,271 03
Commonwealth Pier No. 5 (miscellaneous and extra work), . . . . .	.	.	.	.	.	10,459 60	—	10,459 60
Miscellaneous painting, . . . . .	.	.	.	.	.	8,540 00	—	8,540 00
Cargo hoists, . . . . .	.	.	.	.	.	12,042 00	—	12,042 00
Covering pipes, . . . . .	.	.	.	.	.	3,949 00	—	3,949 00
Painting Kinnear doors and sprinkler pipes in head house, . . . . .	.	.	.	.	.	295 00	—	295 00
Steel signs, . . . . .	.	.	.	.	.	22 50	—	22 50
Viaduct, . . . . .	.	.	.	.	.	106,160 18	—	106,160 18
Viaduct foundation, . . . . .	.	.	.	.	.	127,981 81	—	127,981 81
Viaduct superstructure, . . . . .	.	.	.	.	.	90,965 70	—	90,965 70
Dredging opposite Pier No. 5 and approaches, . . . . .	.	.	.	.	.	137,323 41	—	137,323 41
Grain elevator "Golder," . . . . .	.	.	.	.	.	31,191 57	—	31,191 57
Grain elevator "Moulton," . . . . .	.	.	.	.	.	29,300 00	—	29,300 00
Ladders and steps, watchmen's clock system, downspouts, coal pocket and fire-protection equipment, . . . . .	.	.	.	.	.	4,478 53	—	4,478 53
Engineering, Commonwealth Pier No. 5, . . . . .	.	.	.	.	.	183,758 60	—	183,758 60
Industrial track, . . . . .	.	.	.	.	.	350 00	\$477 04	827 04

MYSTIC RIVER IMPROVEMENT.

Appropriation (chapter 253, General Acts of 1916), \$275,000.

	To Nov. 30, 1917.	1918.	Total.
Development of the Port of Boston Loan Fund,	—	—	\$75,000 00
Harbor Compensation Fund,	—	—	200,000 00
Unexpended Nov. 30, 1918, reverted to the Development of the Port of Boston Loan Fund,			<u>\$275,000 00</u>
			75,000 00
Dredging,	\$185,769 45	—	\$185,769 45
Engineering,	6,561 28	—	6,561 28
Unexpended balance Nov. 30, 1918,	<u>\$192,330 73</u>	—	<u>\$192,330 73</u>
			<u>\$7,669 27</u>

PORT DEVELOPMENT APPROPRIATION.

Expenditures.

	To Nov. 30, 1917.	1918.	Total.
Appropriation (chapter 143, General Acts of 1918), Reserved			
Channel Bulkhead and other work, South Boston Flats,			
Contract work,	\$142,158 64		\$142,158 64
Engineering,	2,076 81		2,076 81
Completion of Dry Dock,	<u>\$144,235 45</u>		<u>\$144,235 45</u>
Contract work,	\$28,786 20		28,786 20
			<u>\$78,342 00</u>

PORT DEVELOPMENT APPROPRIATION — *Concluded.*

<i>Expenditures — Con.</i>			
	To Nov. 30, 1917.	1918.	Total.
Railroad tracks and other work, South Boston Flats,	.	.	.
Contract work,	.	\$21,398 75	\$21,398 75
Engineering,	.	458 63	458 63
		\$21,857 38	\$21,857 38
Dredging and filling and other work, East Boston and South Boston Flats,	.	.	.
Contract work,	.	\$221,605 91	\$221,605 91
			500,000 00
Appropriation (chapter 267, General Acts of 1918) (unexpended balance of appropriation under chapter 143, General Acts of 1918), East Boston Pier: —			
Contract work,	.	\$193,595 86	\$193,595 86
Engineering,	.	3,756 02	3,756 02
		\$197,351 88	\$197,351 88
			\$613,836 82 \$1,778,342 00
Unexpended balance Nov. 30, 1918,	.	.	.
			\$1,164,505 18
FREIGHT SHED, SOUTH BOSTON.			
	To Nov. 30, 1917.	1918.	Total.
Received from emergency war expense appropriation (funds of Public Safety Committee),	.	.	.
Contract work,	.	\$15,351 00	\$15,351 00
Engineering,	.	627 52	732 59
	\$105 07		\$15,978 52
			\$16,083 59

EXPENDITURES FOR DEVELOPMENT AND IMPROVEMENT IN BOSTON HARBOR, 1870-1918, INCLUSIVE.

PAYMENTS FROM —	Boston Harbor. ¹	Commonwealth Flats at East Boston.	Commonwealth Flats at South Boston.	Commonwealth Pier No. 5.	Dry Dock.	Hayward's Creek.	Mystic River.	Chelsea Creek.	Commercial Point, Dorchester Bay.	Commonwealth Pier No. 5, Operation and Maintenance.	Maintenance of Other Property of Commonwealth.	East Boston Pier.
1870-1917.												
All funds and appropriations to Nov. 30, 1917. (See Annual Report, Commission on Waterways and Public Lands, for 1917, pages 106-108).	\$1,607,931 33	\$2,162,649 71	\$4,764,142 33	\$3,986,271 25	\$1,082,177 07	\$17,756 39	\$263,864 30	\$18,844 08	\$53,213 10	\$201,498 44	\$40,959 54	-
1918.												
Boston Harbor dredging appropriation (chapter 348, Special Acts of 1917).	-	-	-	-	-	-	-	12,195 02	-	-	-	-
Dredging opposite Simpson's Patent Dry Dock.	83 39	-	-	-	-	-	-	-	-	-	-	-
Development of the Port of Boston Loan Fund (chapter 748, Acts of 1911).	-	1,524 47	40,306 05	-	959,605 62	76,086 64	-	-	-	-	-	-
Port Development appropriation: —												
Chapter 143, General Acts of 1918.	-	221,605 91	166,092 83	-	28,786 20	-	-	-	-	-	-	-
Chapter 267, General Acts of 1918.	-	-	-	-	-	-	-	-	-	-	-	\$107,351 88
Governor's extraordinary expense appropriation (Emergency War Fund):												
Freight shed, South Boston.	-	-	15,978 52	-	-	-	-	-	-	-	-	-
Quincy Bay Shore (chapter 363, Special Acts of 1917).	-	-	-	-	-	-	-	-	-	-	-	-
Port of Boston Fund (chapter 106, Special Acts of 1918): —	6,459 35	-	-	-	-	-	-	-	-	-	-	-
Operation and maintenance, Commonwealth Pier No. 5.	-	-	-	-	-	-	-	-	-	35,961 81	-	-
Maintenance of Commonwealth's property.	-	-	-	-	-	-	-	-	-	-	25,486 43	-
	\$1,614,474 07	\$2,385,780 09	\$4,986,520 23	\$3,986,271 25	\$2,070,568 89	\$93,813 03	\$263,864 30	\$31,039 10	\$53,213 10	\$237,460 25	\$86,445 97	\$197,351 88

Grand total, \$15,986,832.16.

¹ Not including small harbors and channels reported in table on page 80.

APPROPRIATIONS, CONTRIBUTIONS AND EXPENDITURES FOR IMPROVEMENT
OF SMALL HARBORS AND CHANNELS WITHIN BOSTON MAIN HAR-
BOR, UNDER THE DIRECTION OF THE COMMISSION ON WATERWAYS
AND PUBLIC LANDS, AND ITS PREDECESSORS, FROM 1893 TO 1918,
INCLUSIVE.

LOCALITY.	Character of Work.	Total Appropriation.	Contributions by Municipality or Others.	Total Expenditure.
Cottage Park Channel, Winthrop.	Dredging, . . .	\$9,525 92	—	\$9,504 58
Dorchester, easterly shore, Boston.	Dredging, . . .	70,363 66	—	70,171 31
Harbor View, Boston, . . .	Dredging, . . .	10,146 00	—	146 00
Hingham Harbor, . . .	Dredging, . . .	13,180 69	\$3,000 00	16,180 69
Houghs Neck Channel, Quincy,	Dredging, . . .	13,972 67	500 00	14,472 67
Island End River, Everett, .	Survey, . . .	264 10	—	264 10
Jeffries Point Channel, . . .	Dredging, . . .	11,000 00	—	1,000 00
Mystic River (near Lawrence & Wiggin's Wharf).	Dredging, . . .	5,927 70	—	5,927 70
Neponset River, . . .	Dredging, . . .	43,743 24	—	43,742 50
Orient Heights Channel, . . .	Dredging, . . .	11,298 75	—	10,943 27
Point Shirley, . . .	Dredging, . . .	1,150 00	—	1,150 00
Shirley Gut, Boston and Winthrop.	Dredging, . . .	1,906 20	—	1,906 20
South Boston, southerly shore,	Dredging, . . .	126,972 48	—	126,972 44
Stony Beach, Hull, . . .	Sea wall, . . .	11,607 90	—	11,335 07
Wessagussett Channel, . . .	Dredging, . . .	815 20	—	815 20
Weymouth Fore River, . . .	Dredging, . . .	46,838 34	—	31,913 85
Winthrop Harbor channels, .	Dredging, . . .	30,754 80	700 00	29,500 22
Wollaston Channel, . . .	Dredging, . . .	34,052 64	—	33,631 25
		\$443,520 29	\$4,200 00	\$409,577 05

CONTRIBUTIONS AND EXPENDITURES FOR RIVER AND HARBOR WORK
FROM DEC. 1, 1917, TO NOV. 30, 1918, UNDER CHAPTER 481, ACTS
OF 1909.

LOCATION.	Character of Work.	Contributions.	Expenditure.
Allens Pond, Dartmouth, . . .	Survey,	-	\$195 95
Connecticut River, Hadley, . . .	Diversion wall,	-	7,040 35
Connecticut River, Holyoke, . . .	Marking and lighting old piers, . . .	-	206 23
Cotuit Harbor,	Dredging,	-	26,199 78
Deacons Pond Harbor, Falmouth, . . .	Dredging,	-	10,610 69
Ellisville Harbor,	Dredging,	-	32 62
Falmouth Heights, Falmouth, . . .	Sea wall,	\$10,000 00	24,256 50
Five Pound Island, Gloucester, . . .	Survey,	-	568 36
Gun Rock Point, Hull,	Breakwater,	-	4,954 25
Harbor Cove, Gloucester,	Dredging,	866 00	1,230 20
Herring Creek, Scituate,	Survey,	-	253 76
Ipswich River,	Dredging,	-	13 33
Lake Anthony,	Dredging,	-	15,550 05
Little Harbor, Marblehead,	Dredging,	-	5,420 72
Manchester Harbor,	Survey and dredging,	3,500 00	4,902 59
Newburyport Harbor,	Survey,	-	33 44
Oak Bluffs,	Sea wall,	2,500 00	18,486 00
Pamet River,	Survey, dredging and repairing jetties,	-	102 01
Plymouth Harbor,	Surveys and dredging,	-	1,911 49
Powow River,	Dredging channel and riprapping wall,	-	27 64
Provincetown Harbor,	Survey,	-	14 52
Sand Hills, Scituate,	Sea wall,	-	13 47
Sandwich Harbor,	Dredging channel,	-	5,017 02
Sesuit Harbor,	-	-	210 23
Taunton River-Massachusetts Bay Canal,	Survey,	-	2,156 01
Vineyard Haven Harbor,	Repairing sea wall,	1,000 00	1,872 99
Waquoit Bay,	Breakwater, wall and bulkhead,	2,000 00	8,221 18
Warrens Cove, Plymouth,	Sea walls,	-	2,000 00
Winthrop Shore,	Sea walls and protective work,	-	336 45
Yarmouthport,	Survey,	2,000 00	19 32
General,	-	-	670 25
		\$21,866 00	\$142,527 40

APPROPRIATIONS, CONTRIBUTIONS AND EXPENDITURES FROM 1893 TO 1918, INCLUSIVE, FOR RIVER AND HARBOR WORK, UNDER THE DIRECTION OF THE BOARD OF HARBOR AND LAND COMMISSIONERS TO AUG. 3, 1916, AND THE COMMISSION ON WATERWAYS AND PUBLIC LANDS AUG. 3, 1916, TO NOV. 30, 1918, EXCEPTING BOSTON MAIN HARBOR.

LOCALITY.	Character of Work.	Total Appropriation.	Contribution by Municipality or Others.	Total Expenditure.
Acushnet River, . . .	Inspection, . . .	\$2 15	-	\$2 15
Allens Harbor, Harwich, . .	Surveys, . . .	302 00	-	302 00
Allens Pond, Dartmouth, .	Survey, . . .	195 95	-	195 95
Annisquam River, Gloucester, .	Dredging, removing ledges and rip-rap.	107,630 63	-	107,260 75
Apponagansett Harbor and River, Dartmouth.	Survey, dredging and stone breakwater.	56,159 59	-	55,786 05
Barnstable Harbor, . . .	Survey and dredging.	13,747 18	\$1,500 00	14,909 64
Bass River, Beverly, . . .	Dredging, . . .	23,539 81	55,535 75	81,075 56
Bass River, Dennis and Yarmouth.	Jetties, dredging and survey.	70,896 34	2,500 00	71,911 34
Brant Rock, Marshfield, . .	Sea wall, . . .	965 84	-	965 84
Bucks Creek, Chatham, . .	Jetties, survey and dredging.	13,513 35	1,000 00	14,342 03
Buzzards Bay, Falmouth, .	Survey, . . .	166 11	-	166 11
Cataumet Harbor and Squeague Pond, Bourne and Falmouth.	Dredging, . . .	26,468 29	7,350 00	33,674 38
Centerville River, Barnstable, .	Dredging, . . .	6,103 22	1,500 00	7,603 22
Cohasset Harbor, Cohasset and Scituate.	Breakwater and dredging.	33,634 22	20,691 88	54,326 10
Concord River, Billerica, .	Removing boulders, .	1,514 59	150 00	1,664 59
Connecticut River, . . .	Investigation of navigation and surveys.	10,637 04	-	6,970 99
Connecticut River, . . .	Improvement, . . .	103 63	-	103 63
Connecticut River, Agawam, .	Protective work, .	20,396 09	-	18,814 42
Connecticut River, Chicopee, .	Survey, wall and rip-rap.	25,149 02	640 00	25,789 02
Connecticut River, Hadley, .	Protective work and diversion wall.	96,108 43	500 00	93,405 72 ¹
Connecticut River, Hatfield, .	Dikes and rip-rap, .	14,751 82	1,000 00	14,952 57
Connecticut River, Holyoke, .	Marking and lighting old piers.	206 23	-	206 23
Connecticut River, Holyoke, .	Dredging and protective work.	18,815 78	415 00	4,230 78
Connecticut River, Northampton.	Protective work, .	1,525 80	-	1,524 20
Connecticut River, South Hadley.	Wall, . . .	6,406 36	1,000 00	7,379 58
Connecticut River, West Springfield.	Protective work, .	5,135 00	-	5,051 49 ²
Conservation of waters, . .	Investigation, . . .	38,000 00	-	28,400 88
Cotuit Harbor, Barnstable, .	Dredging and survey,	59,748 02	2,000 00	58,719 91
Cuttyhunk Harbor, Gosnold, .	Jetties and dredging, .	61,828 25	9,000 00	70,754 18

¹ From 1888, inclusive.² From 1891, inclusive.

APPROPRIATIONS, ETC. — *Continued.*

LOCALITY.	Character of Work.	Total Appropriation.	Contribution by Municipality or Others.	Total Expenditure.
Deacons Pond Harbor, Falmouth.	Dredging, jetties and wall.	\$57,480 57	\$14,000 00	\$71,480 57
Duxbury Bay and Harbor, .	Dredging, . . .	27,798 79	—	27,798 79
East Bay, Osterville, . .	Jetties, dredging and removing scows.	23,864 35	—	23,529 79
Edgartown Harbor, . . .	Survey, . . .	205 65	—	205 65
Ellisville Harbor, . . .	Dredging, . . .	8,206 62	—	8,206 62
Essex County beaches, . .	Survey, . . .	1,000 00	—	1,000 00
Essex River, . . .	Dredging, . . .	5,000 00	—	5,000 00 ¹
Fall River Harbor, . . .	Improvement, . . .	350,014 46	—	854 10
Falmouth Heights, Falmouth, .	Sea wall, . . .	20,120 01	11,000 00	31,120 01
Glades, North Scituate, . .	Survey, . . .	51 63	—	51 63
Gloucester Harbor, Gloucester,	Dredging and removing ledges.	33,900 45	—	33,900 45
Green Harbor, Marshfield, .	Jetties, dredging and survey.	90,804 54	—	76,466 85
Gun Rock Point, Hull, . . .	Breakwater, . . .	48,096 11	10,000 00	58,096 11
Harbor Cove, Gloucester, .	Survey and dredging,	16,034 27	866 00	16,900 27
Herring Creek, Scituate, . .	Survey, . . .	253 76	—	253 76
Herring River, Harwich, . .	Jetties and dredging, .	39,860 62	2,500 00	41,641 32
Herring River, Wellfleet, . .	Dikes and ditches, .	11,832 74	10,000 00	21,800 73
Housatonic River, Sheffield, .	Survey, . . .	2,011 29	—	2,011 29
Hull,	Sea wall and survey, .	25,238 32	8,882 06	34,120 38
Humarock Beach, Scituate, .	Survey, . . .	250 00	—	236 07
Hyannisport, Barnstable, .	Survey and breakwater.	49,988 82	2,500 00	52,488 82
Improvement of rivers and harbors.	General expenses, .	4,355 00	—	4,355 00
Ipswich River, Ipswich, . .	Jetty, wall, rip-rap and dredging.	46,884 26	1,000 00	47,877 70
Lake Anthony, Oak Bluffs, .	Jetties and dredging, .	63,354 22	2,000 00	62,145 18
Lake Quannapowitt, Wakefield,	Investigation, . . .	1,004 21	—	345 32
Lewis Bay, Barnstable, . . .	Survey and dredging,	29,211 64	—	28,963 21
Little Harbor, Marblehead, .	Dredging, . . .	3,556 37	2,500 00	6,056 37
Little River, Gloucester, . .	Survey, . . .	862 93	—	862 93
Lobster Cove, Gloucester, .	Dredging, . . .	17,603 98	1,500 00	19,103 98
Lynn Harbor, Anchorage Basin,	Survey and dredging,	62,901 67	5,200 00	62,700 45
Lynn Harbor and Saugus River,	Dredging and filling, .	82,571 12	35,000 00	117,571 12
Manchester Harbor, . . .	Survey, jetties and dredging.	50,298 69	39,000 00	86,776 53
Menamsha Inlet, Chilmark and Gay Head.	Jetties, dredging and sea wall.	63,423 34	700 00	64,019 69
Merrimack River, . . .	Investigation and survey.	669 26	—	569 26

¹ Expended by United States government.

APPROPRIATIONS, ETC. — *Continued.*

LOCALITY.	Character of Work.	Total Appropriation.	Contribution by Municipality or Others.	Total Expenditure.
Mill River, Gloucester, . .	Survey and dredging,	\$24,632 86	\$300 00	\$24,899 59
Mitchells River, Chatham, .	Survey,	322 96	—	322 96
Nantucket Harbor,	Dredging,	42,058 63	1,000 00	42,779 78
New Bedford Harbor, . . .	Pier, shed and dredging.	370,372 40	—	352,796 05
New Bedford State Pier, . .	Improvement of, . .	73,461 00	—	40 00
New Bedford State Pier, . .	Operation and maintenance.	10,000 00	—	9,982 19
Newburyport Harbor, . . .	Survey,	33 44	—	33 44
Nobscusset Harbor, Dennis, .	Breakwater, dredging and rip-rap.	26,599 03	1,200 00	18,438 48
North River, Marshfield, . .	Surveys and removing rocks.	6,858 75	1,800 00	8,658 75
North River, Salem, . . .	Survey,	704 52	—	704 52
Oak Bluffs,	Removing rocks, . .	632 45	—	594 95
Oak Bluffs,	Sea wall,	15,986 00	2,500 00	18,486 00
Onset Bay, Wareham, . . .	Survey and dredging,	14,067 89	1,000 00	15,067 89
Orleans,	Survey,	104 18	—	104 18
Pamet River, Truro, . . .	Survey, dredging and repairing jetties.	1,366 73	200 00	1,566 73
Paskamansett River, Dartmouth.	Dredging and jetty, .	5,227 68	—	5,227 68
Penikese Island, Gosnold, .	Pile wharf and survey,	5,300 00	—	5,192 95
Plum Island River, Newbury and Newburyport.	Survey,	983 31	—	983 31
Plymouth Harbor,	Dredging,	174,782 09	71,794 55	220,074 37 ¹
Popponnesett Bay,	Dredging,	15,463 03	—	15,463 03
Powow River,	Dredging channel and rip-rapping wall.	431 64	—	431 64
Province Lands, Provincetown,	Reclamation, . . .	83,000 00	—	75,766 47
Provincetown Harbor, . . .	Survey,	1,217 78	—	1,217 78
Quansett Harbor, Orleans, .	Survey,	195 88	—	194 50
Quicks Hole, Gosnold, . . .	Survey,	500 00	—	—
Red Brook Harbor, Bourne, .	Removing pier, . .	275 00	—	275 00
Revere,	Stone breakwater, .	60,407 09	—	60,397 93
Rock Harbor, Orleans, . . .	Dredging,	12,108 25	400 00	12,492 71
Rockport Harbor,	Dredging and removing rocks.	14,387 63	—	13,707 33
Salem Harbor,	Survey,	3,050 05	—	1,050 05
Salt Pond River, Eastham, .	Survey,	210 11	—	210 11
Salters Point, Dartmouth, .	Breakwater, . . .	13,509 59	1,500 00	15,009 59
Sandwich Harbor,	Dredging channel, rip-rap and jetties.	72,850 52	—	72,850 52
Saugus River, Lynn and Saugus.	Survey and dredging,	19,206 64	2,000 00	20,845 17

¹ \$57,000 expended under direction of United States government.

APPROPRIATIONS, ETC. — *Concluded.*

LOCALITY.	Character of Work.	Total Appropriation.	Contribution by Municipality or Others.	Total Expenditure.
Scituate,	Sea wall and rip-rap, .	\$53,194 53	\$235 00	\$52,324 66
Scituate Harbor,	Dredging,	65,743 76	8,300 00	74,043 76
Scorton Harbor, Sandwich, .	Jetty and dredging, .	19,426 39	500 00	17,774 34
Sesuit Harbor, Dennis, . .	Jetty,	24,694 28	1,000 00	20,681 53
Sippican Harbor, Marion, .	Survey,	7 17	—	7 17
Smith's Cove, Gloucester, .	Survey and dredging,	5,163 07	—	5,163 02
South River, Salem, . . .	Dredging,	10,523 65	3,000 00	13,462 66
South Watuppa Pond, Fall River.	Fenders and excavation.	203 42	—	203 42
Stage Harbor, Chatham, . .	Dikes and survey, .	10,803 01	—	10,803 01
Taunton River,	Survey and investigation.	5,532 99	—	1,960 51
Taunton-Brockton waterway, .	Investigation, . . .	5,388 46	—	5,278 18
Taunton River-Boston Harbor Canal.	Survey,	10,000 00	—	9,932 75
Taunton River-Massachusetts Bay Canal.	Survey,	11,672 05	—	11,672 05
Vineyard Haven Harbor, . .	Repairing sea wall, .	8,885 61	2,380 50	11,266 11
Vineyard Haven Harbor, Tisbury.	Breakwater and dredging.	45,089 48	1,000 00	45,518 25
Waquoit Bay, Falmouth, . .	Breakwater wall and bulkhead.	18,567 97	2,000 00	20,269 58
Wareham River,	Survey and dredging,	37,349 27	5,000 00	42,349 27
Warrens Cove, Plymouth, . .	Sea wall,	14,448 97	9,713 98	24,461 22
Watch Hill, Chatham, . . .	Survey and rip-rap, .	15,020 47	—	14,968 75
Wellfleet Harbor,	Survey and dredging,	16,867 22	1,500 00	17,600 29
West Bay, Barnstable, . . .	Jetties and dredging, .	45,460 82	—	45,423 45
West Falmouth Harbor, Falmouth.	Dredging,	25,655 31	—	24,386 18
West Harwich,	Survey,	9 00	—	9 00
Westfield River,	Survey,	5,000 00	—	4,740 39
Wild Harbor, Falmouth, . . .	Jetty and dredging, .	15,671 59	5,000 00	15,614 72
Winthrop Shore,	Sea walls and protective work.	17,002 79	3,000 00	20,002 79
Witchmere Harbor, Harwich, .	Jetties and dredging, .	28,762 28	1,000 00	29,619 58
Woods Hole, Great Harbor, Falmouth.	Dredging,	5,468 86	1,500 00	6,968 86
Wrecks,	Removal from tide-water.	65,816 66	—	7,005 08
Yarmouthport Harbor, . . .	Survey,	321 92	2,000 00	341 24
		\$3,612,418 56	\$382,254 72	\$3,358,716 73

FEDERAL APPROPRIATIONS AND EXPENDITURES.

Federal appropriations and expenditures for improvement of rivers and harbors in Massachusetts from the establishment of the government to the close of the fiscal year ending June 30, 1918, as shown in the following tables, furnished by the Chief of Engineers, U. S. A.:—

TABLE NO. 1. — *Localities at Present under Improvement.*

[Compiled from the annual report of the Chief of Engineers, U. S. A., for the fiscal year ending June 30, 1918.]

LOCALITY.	Expenditures.	Appropriations.
Newburyport Harbor,	\$494,009 54	\$494,100 00
Merrimack River,	404,347 98	414,466 72 ¹
Sandy Bay, Cape Ann, harbor of refuge,	1,941,478 00	1,950,000 00
Gloucester Harbor,	538,183 00	542,083 00
Beverly Harbor,	49,125 00	49,125 00
Salem Harbor,	71,368 66	71,368 66 ²
Lynn Harbor,	470,585 37	476,837 00
Mystic River (upper portion), ³	304,854 70	336,050 00
Mystic River (below mouth of Island End River), ³		
Malden River,	70,869 37	149,950 00
Boston Harbor, ⁴	12,487,842 06	12,610,827 58
Dorchester Bay and Neponset River,	95,008 00	95,233 00
Weymouth Fore River,	189,707 33	490,750 00
Weymouth Back River,	26,500 00	27,000 00
Plymouth Harbor,	363,868 69	391,959 80
Provincetown Harbor,	348,062 72	362,162 97
Pollock Rip Shoals, Nantucket Sound,	398,166 82	400,000 00
Nantucket harbor of refuge,	574,357 70	586,473 50
New Bedford and Fairhaven harbors,	754,310 00	769,310 00
Taunton River,	201,440 33	210,189 18
Fall River Harbor,	380,911 49	380,911 49
Totals,	\$20,164,996 76	\$20,808,797 90

¹ Of original amount appropriated, \$900 was carried to the surplus fund of the treasury from a previous project.

² Of original amount appropriated, \$1,131.34 was carried to the surplus fund of the treasury.

³ Now consolidated as one improvement.

⁴ Including Chelsea Creek.

TABLE No. 2. — *Localities in which Work is not now in Progress.*

[Compiled from data furnished by the United States Treasury Department and the Chief of Engineers, U. S. A.]

LOCALITY.	Expenditures.	Appropriations.
Bass River,	\$20,150 34	\$20,150 41
Buzzards Bay Harbor,	2,500 00	2,500 00
Canapitset Channel,	5,312 54	9,800 00
Chatham Harbor,	12,171 36	13,732 79
Cohasset Harbor,	10,000 00	10,000 00
Duxbury Harbor,	37,000 00	37,000 00
East Dennis Breakwater,	7 57	1,500 00
Edgartown Harbor,	25,000 00	25,000 00
Essex River,	30,000 00	30,000 00
Hingham Harbor,	38,316 58	39,000 00
Hyannis Harbor,	221,787 75	221,267 07
Ipswich River,	5,617 91	7,500 00
Kingston Harbor,	8,940 09	10,000 00
Little Harbor, Woods Hole,	18,000 00	18,000 00
Manchester Harbor,	23,985 57	24,300 00
Marblehead Harbor,	833 42	1,900 00
Marthas Vineyard Harbor,	7,000 00	7,000 00
Powow River,	50,940 72	51,000 00
Rockport Harbor,	91,229 25	91,232 57
Scituate Harbor,	104,590 98	104,680 00
Town River,	37,577 41	37,577 41
Vineyard Haven Harbor,	55,387 35	60,900 00
Wareham Harbor,	95,997 30	96,236 00
Wellfleet Harbor,	11,365 57	16,000 00
Westport Harbor and River,	3,000 00	3,000 00
Winthrop Harbor,	9,000 00	9,000 00
Woods Hole Channel,	343,599 92	344,000 00
Totals,	\$1,269,311 63	\$1,291,376 25

RECAPITULATION.	Expenditures.	Appropriations.
Total of Table No. 1,	\$20,164,996 76	\$20,808,797 90
Total of Table No. 2,	1,241,632 38	1,243,666 27
Grand totals,	\$21,406,629 14	\$22,052,464 17

EXPENDITURES ON BOSTON HARBOR AND ITS TRIBUTARIES TO JUNE 30, 1918.

[The tributaries given are those now under improvement, and do not include tributaries heretofore improved.]

LOCALITY.	Expenditures.	Appropriations.
Boston Harbor proper, ¹	\$12,487,842 06	\$12,610,827 58
Mystic River (below mouth of Island End River), ²	304,854 70	336,050 00
Mystic River (upper portion), ²	70,869 37	149,950 00
Malden River,		
Totals,	\$12,863,566 13	\$13,096,827 58

¹ Including Chelsea Creek.² Now one improvement.

CONTRACTS MADE BY THE BOARD OF HARBOR AND LAND

Contract No.	WORK.	Contractor.	Date.
185	Ipswich River, Ipswich, concrete wall and timber bulkhead.	Rendle & Stoddard, . . .	June 30, 1914
244	Nobscusset Harbor, Dennis, dredging channel and basin.	Maryland Dredging and Contracting Company.	Apr. 11, 1916
256	Plymouth Harbor, dredging channel.	Boston Dredging Company, .	June 29, 1916

CONTRACTS AWARDED BY THE DIRECTORS OF THE PORT OF BOSTON

Contract No.	WORK.	Contractor.	Date.
25	Dry dock,	Holbrook, Cabot & Rollins Corporation.	June 22, 1914
51	Reclamation of flats at East Boston,	Atlantic, Gulf & Pacific Company.	Mar. 14, 1916

COMMISSIONERS AND PENDING DURING THE YEAR 1918.

Condition of Work.	Contract Prices.	Amount paid during Year ending Nov. 30, 1918.	Total paid to Nov. 30, 1918.	Estimated Amount of Contract.
Suspended,	Lump sum,	-	\$1,382 78	\$2,324 00
Suspended,	Dredging, 27.53 cents per cubic yard, measured in scows. Excavating bowlders, \$9.50 per cubic yard. Dredging and disposing of dredged material on land and flats, 27.53 cents per cubic yard, measured <i>in situ</i> .	-	72 31	9,300 00
Completed Dec. 6, 1917.	For dredging, 24.9 cents per cubic yard, measured in scows. For excavating bowlders, \$9.50 per cubic yard.	\$1,440 59	9,375 34	9,375 34

AND IN FORCE DURING THE YEAR ENDING NOV. 30, 1918.

Condition of Work.	Contract Prices.	Amount paid during Year ending Nov. 30, 1918.	Total paid to Nov. 30, 1918.	Estimated Amount of Contract.
In progress,	Unit prices,	\$724,086 08	\$1,206,980 57	\$1,865,157 25
In progress,	15.47 cents per cubic yard,	221,605 91	742,337 68	706,979 00 ¹

¹ Includes extension of the original contract.

CONTRACTS MADE BY THE COMMISSION ON WATERWAYS

Contract No.	Work.	Contractor.	Date.
4	Waquoit Bay, breakwater and wall,	John R. Burke, . . .	Aug. 2, 1916
9	Extension of contract No. 51 (Directors of the Port of Boston) for dredging and filling at East Boston.	Atlantic, Gulf & Pacific Company.	Oct. 6, 1916
15	Dry dock, pumping plant, . . .	Worthington Pump and Machinery Corporation.	July 30, 1917
15A	Dry dock, transformers, . . .	General Electric Company, .	June 26, 1917
19	Bass River, Dennis and Yarmouth, repairing easterly jetty.	John R. Burke, . . .	Sept. 10, 1917
20	Cotuit Harbor, dredging channel, .	John R. Burke, . . .	June 26, 1917
25	Chelsea Creek, dredging channel, .	Atlantic, Gulf & Pacific Company. (Assigned Mar. 19, 1918, to Bay State Dredging & Contracting Co.)	Aug. 9, 1917
26	Dry dock, sluice gates, . . .	Coffin Valve Company, . . .	Aug. 21, 1917
28	Sandwich Harbor, dredging channel and extending jetty.	Bay State Dredging and Contracting Company.	Sept. 18, 1917
29	Ellisville Harbor, Plymouth, dredging channel and basin and riprapping banks.	Dennis F. Crowley, . . .	Aug. 21, 1917
30	Herring River, Harwich, dredging channel.	John R. Burke, . . .	Aug. 21, 1917
31	Houghs Neck, Quincy, sea wall, .	Dennis F. Crowley, . . .	Sept. 18, 1917
36	Little Harbor, Marblehead, dredging basin.	George T. Rendle Company, .	Sept. 18, 1917
37	Westfield River, stone jetties, .	Woronoco Construction Company.	Oct. 16, 1917
38	New Bedford State Pier, installing fire sprinklers.	General Fire Extinguisher Company of Massachusetts.	Oct. 2, 1917
41	Tracks on viaduct at South Boston,	C. W. Dolloff & Co., . . .	Oct. 25, 1917
42	Installing electric poles and wires for track on viaduct.	Fred T. Ley & Co., Incorporated.	Oct. 25, 1917
43	Freight shed at D Street, South Boston.	Gerry & Northup Company, .	Nov. 22, 1917
44	Dry dock, floors and stairs for pump well.	Donnelly Iron Works, Inc., .	Jan. 23, 1918
45	Dry dock, caisson,	Bethlehem Steel Bridge Corporation,	Apr. 23, 1918

AND PUBLIC LANDS AND PENDING DURING THE YEAR 1918.

Condition of Work.	Contract Prices.	Amount paid during Year ending Nov. 30, 1918.	Total paid to Nov. 30, 1918.	Estimated Amount of Contract.
Completed Sept. 19, 1918.	For stone in place in breakwater, \$2.95 per ton. For stone in place in wall, \$3.95. For timber bulkhead, \$4.90 per linear foot.	\$17,932 57	\$17,932 57	\$15,000 00
In progress, .	15.47 cents per cubic yard, . . .	-1	-1	-1
In progress, .	Lump sum of \$192,979, . . .	146,644 20	146,644 20	193,119 00
In progress, .	Lump sum of \$14,942, . . .	12,071 70	12,071 70	14,942 00
Completed Dec. 6, 1917.	Lump sum of \$1,560, . . .	300 30	1,560 00	1,560 00
Completed July 30, 1918.	Dredging, 46.9 cents per cubic yard, measured in scows. Excavating bowlders, \$10 per cubic yard.	24,752 61	25,843 31	25,000 00
In progress, .	15.47 cents per cubic yard for material dredged and deposited on shores; 25.5 cents per cubic yard, measured in scows, for material dredged and placed in scows for transportation.	11,526 93	29,653 19	60,000 00
In progress, .	Lump sum of \$21,500, . . .	17,478 00	18,198 00	21,500 00
Completed Dec. 14, 1917.	Dredging, 55 cents per cubic yard, measured in scows; \$3.50 per ton for furnishing and placing stone in jetty.	4,762 75	14,207 65	14,207 65
In progress, .	Dredging, 78 cents per cubic yard, measured <i>in situ</i> ; \$3.65 per ton for furnishing and placing stone.	-	7,673 37	12,645 00
Completed Dec. 27, 1917.	Lump sum of \$5,000, . . .	4,862 50	5,925 00	5,500 00
In progress, .	Unit prices,	5,440 00	5,440 00	14,576 50
In progress, .	Dredging, 49 cents per cubic yard, measured in scows. Excavating bowlders, \$14 per cubic yard.	5,042 57	5,042 57	9,800 00
Completed July 15, 1918.	\$3.98 per ton for stone furnished and placed.	4,544 03	4,544 03	3,980 00
Completed Apr. 11, 1918.	Lump sum of \$7,000. Additional sprinklers, with piping and accessories, \$4.50 each.	7,360 00	7,360 00	7,000 00
Completed Apr. 6, 1918.	Unit prices,	17,295 68	18,430 97	18,430 97
Completed Dec. 19, 1917.	Unit prices,	1,805 73	1,805 73	1,805 73
Completed Feb. 11, 1918.	Lump sum of \$8,976, . . .	8,976 00	8,976 00	8,976 00
In progress, .	Unit prices,	18,479 00	18,479 00	23,460 00
In progress, .	Unit prices,	-	-	357,959 13

¹ See Contract No. 51.

CONTRACTS MADE BY THE COMMISSION ON WATERWAYS AND

Contract No.	WORK.	Contractor.	Date.
46	New Bedford State Pier, electric light and power system.	G. H. T. Brown & Co., Inc., .	Dec. 5, 1917
47	Reserved Channel, bulkhead, .	William L. Miller Company, .	Apr. 15, 1918
48	Lake Anthony, dredging, . .	Bay State Dredging and Contracting Company.	May 17, 1918
49	Manchester Harbor, dredging, .	Bay State Dredging and Contracting Company.	May 1, 1918
50	Yarmouthport Harbor, Yarmouth and Barnstable, dredging channel.	Bay State Dredging and Contracting Company.	Oct. 7, 1918
51	Dry dock, crane,	Whiting Foundry Equipment Company.	July 1, 1918
52	Powow River, Amesbury, . .	John H. Moran,	July 13, 1918
53	Oak Bluffs, sea wall,	Thomas Cavanagh Company, .	June 10, 1918
54	Dry dock, pump house superstructure.	Weiss Construction Company, .	June 19, 1918
57	East Boston Pier,	William L. Miller Company, .	June 19, 1918
58	Falmouth Heights, sea wall, . .	William H. Connor,	June 12, 1918
59	Harbor Cove, Gloucester, . . .	Thomas Fitzgibbon,	June 3, 1918
60	Deacons Pond Harbor,	John R. Burke,	June 3, 1918
61	Pamet River, Truro,	Bay State Dredging and Contracting Company.	Oct. 7, 1918
62	Connecticut River, Hadley, diversion wall.	Daniel O'Connell's Sons, . .	July 17, 1918
63	Deacons Pond Harbor,	John R. Burke,	July 5, 1918
64	Trolley Freight Shed, South Boston, paving in front of roadway.	Coleman Brothers,	July 25, 1918
65	Vineyard Haven, Tisbury, sea wall,	James H. Norton,	Aug. 20, 1918
66	Dry dock, capstans,	The Wellman-Seaver-Morgan Company.	Nov. 1, 1918
67	Simpson's Patent Dry Dock, .	Boston Dredging Company, .	Oct. 2, 1918
69	East Boston Pier No. 1, heating and plumbing.	J. Caddigan Company, . .	Nov. 13, 1918
70	New Bedford State Pier, improvements.	J. W. Bishop & Co.,	Nov. 1, 1918
71	Nobscusset Point, Dennis, . .	Crosby & Taylor,	Nov. 6, 1918

PUBLIC LANDS AND PENDING DURING THE YEAR 1918 — *Concluded.*

Condition of Work.	Contract Prices.	Amount paid during Year ending Nov. 30, 1918.	Total paid to Nov. 30, 1918.	Estimated Amount of Contract.
Completed June 4, 1918.	Lump sum of \$1,335,	\$4,781 70	\$4,781 70	\$4,781 70
In progress, .	\$34.19 per linear foot, completed bulkhead.	142,158 64	142,158 64	172,317 50
Completed Sept. 3, 1918.	Dredging, 63 cents per cubic yard. Excavating bowlders, \$18 per cubic yard.	14,718 06	14,718 06	14,718 06
In progress, .	Dredging, 45.5 cents per cubic yard. Excavating bowlders, \$15 per cubic yard.	4,592 66	4,592 66	9,100 00
Not begun, .	Dredging, 85 cents per cubic yard. Excavating bowlders, \$15 per cubic yard.	-	-	70,550 00
In progress, .	Lump sum of \$4,150,	2,916 00	2,916 00	4,150 00
Completed Nov. 18, 1918.	Lump sum of \$450.	404 00	404 00	450 00
Completed Nov. 2, 1918.	Concrete, \$20 per cubic yard. Piles, 70 cents per linear foot. Timber caps, etc., \$140 per 1,000 feet B. M.	16,901 15	16,901 15	16,901 15
In progress, .	Lump sum of \$34,554.	7,391 20	7,391 20	31,661 00
In progress, .	Unit prices,	193,081 07	193,081 07	306,620 60
In progress, .	Concrete, \$11.65 per cubic yard. Throwing down standing sections, lump sum of \$1,142.65.	22,728 54	22,728 54	32,527 75
In progress, .	Dredging, \$2 per cubic yard, .	972 40	972 40	2,600 00
Completed June 25, 1918.	Dredging, 50 cents per cubic yard,	2,000 00	2,000 00	2,500 00
Not begun, .	Dredging, 70 cents per cubic yard. Stone, \$5.60 per ton. Materials and dike, \$5,000.	-	-	152,840 00
In progress, .	Furnishing and depositing stone, \$4.10 per ton.	6,318 30	6,318 30	8,200 00
Completed Oct. 11, 1918.	Dredging, 50 cents per cubic yard,	7,943 00	7,943 00	6,500 00
In progress, .	Lump sum of \$7,500,	27,773 75	27,773 75	61,924 00
Completed Oct. 28, 1918.	\$21 per cubic yard of concrete measured in completed work.	1,838 55	1,838 55	2,100 00
In progress, .	For each capstan complete with pit cover, \$13,050 per capstan. For rotary convertor, \$8,615.	-	-	73,865 00
In progress, .	Dredging, 45 cents per cubic yard,	-	-	2,356 65
In progress, .	Lump sum of \$5,047,	514 79	514 79	5,047 00
In progress, .	For shed, etc., \$45,487. For other work, unit prices.	-	-	63,328 42
In progress, .	Furnishing and placing stone, \$3.85 per ton. Dredging, 50 cents per cubic yard.	-	-	4,580 00

INDEX.

INDEX.

COMMISSIONER'S REPORT:

	PAGE
Allens Pond, Dartmouth,	20
Apponagansett Harbor,	21
Appropriations, Contributions and Expenditures for River and Harbor Work,	82
Bass River, Dennis and Yarmouth,	21
Boston Harbor:	
Aids to Navigation,	17
Anchorage Basin, Repair of Dolphins,	16
Appropriations, Contributions and Expenditures for Improvement of Small Harbors and Channels within Boston Harbor,	80
Boston Harbor, Minor Channels,	4
Chelsea Creek,	16
Commonwealth Flats at East Boston,	14
Commonwealth Pier No. 1,	15
Direct Connection with South Boston,	4
Commonwealth Flats at South Boston,	6
Boston Army Supply Base,	10
Commonwealth Pier No. 5,	6
Commonwealth Pier No. 6,	8
Direct Connection with East Boston,	4
Dry Dock,	6
Installation of Street Railway Tracks across the Viaduct,	9
Lease to Boston Molasses Company,	14
Naval Coal Supply Depot,	12
Railroad Freight Yard,	13
Reserved Channel, Bulkhead,	10
Streets and Industrial Tracks,	12
Trolley Freight Shed,	9
Use by United States of Land South of Summer Street,	11
Commonwealth's Terminal on Weymouth Fore River and Hayward's Creek,	17
East Boston - South Boston, Direct Connection,	4
Expenditures for Development and Improvement in Boston Harbor, 1870-1918, inclusive,	79
Financial Statement,	69-79
Boston Harbor Dredging,	71
Commonwealth Flats Development,	71
Development of the Port of Boston Loan Fund,	71
Commercial Point, Dorchester Bay,	72
Dry Dock,	72
East Boston,	73
Hayward's Creek,	72
Mystic River Improvement,	74
Mystic River at Malden Bridge,	74
South Boston,	73
Expenditures for Development and Improvement in Boston Harbor, 1870-1918, inclusive,	79

Boston Harbor — *Concluded.*

Financial Statement — <i>Concluded.</i>	PAGE
Freight Shed, South Boston,	76
Harbor Compensation Fund,	69
Income of Harbor Compensation Fund,	69
Mystic River Improvement,	75
Port Development Appropriation,	75
Port of Boston Fund,	69
Quincy Bay Shore (Hough's Neck Sea Wall),	77
Receipts:	
Harbor Compensation Fund,	77
Improvement of Rivers and Harbors,	78
Income, Commission on Waterways and Public Lands,	78
Port of Boston Fund,	77
Waterways Fund,	78
Floating Grain Elevators,	13
Further Improvement and Development of the Port of Boston,	3
Hough's Neck, Quincy, Sea Wall,	17
Simpson's Patent Dry Dock Company, Dredging,	16
Bucks Creek, Chatham,	21
Buzzards Bay, Aids to Navigation,	21
Cape Cod Canal,	44
Connecticut River:	
Hadley,	22
Removal of Old Piers,	22
Conserving and Equalizing the Flow of Water in Rivers and Streams,	40
Contracts made and pending during 1918,	88
Contributions and Expenditures for River and Harbor Work,	81
Cotuit Harbor,	22
Cuttyhunk Harbor,	23
Deacons Pond Harbor, Falmouth,	23
Ellisville Harbor, Plymouth,	24
Falmouth Heights,	24
Federal Appropriations and Expenditures,	86
Fish Weir Permits approved during the year,	60
Gloucester Harbor:	
Aids to Navigation,	25
Five Pound Island,	25
Harbor Cove,	25
Great Ponds,	40
Herring River, Harwich,	26
Improvement of Rivers, Harbors, Tide Waters and Foreshores,	5
Lake Anthony,	26
Licenses granted during the year,	51
Little Harbor, Marblehead,	27
Lynn Harbor,	27
Manchester Harbor,	27
Massachusetts Atlas Sheets and Town Boundary Atlases,	43
Merrimack River,	5
Miscellaneous Permits granted during the year,	56
Nantucket Harbor,	28
New Bedford State Pier,	28
Income,	78
Nobscusset Harbor, Dennis,	31
North River, Scituate,	32
Oak Bluffs,	32
Pamet River, Truro,	33

PAGE

Plymouth Harbor,	34
Powow River, Amesbury,	34
Province Lands,	41
Provincetown Harbor,	34
Recommendations,	3
Re-establishment of Certain Triangulation Points,	43
Rivers, Harbors, Tide Waters and Foreshores, exclusive of Boston Harbor,	19
Sandwich Harbor,	35
Scituate Sea Walls;	
The Glades,	35
Sand Hills,	35
Sesuit Harbor, Dennis,	36
Vineyard Haven,	36
Waquoit Bay, Falmouth and Mashpee,	36
Warrens Cove, Plymouth,	37
Waterways Fund,	78
West Bay, Barnstable,	37
Westfield River,	37
Woods Hole Great Harbor:	
Aids to Navigation,	38
Yarmouthport Harbor,	38



